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GOLD MEDAL PRIZE ESSAY.

Subject :

“THE RELATIVE ADVANTAGES OF VOLUNTARY
AND COMPULSORY SERVICE, BOTH FROM A
MILITARY AND A NATIONAL POINT OF VIEW.”

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“*Arma cedant togæ.*”

CHAPTER I.

“It is a strange desire which men have, to seek power and
lose liberty.”
—*Bacon's Essays.*

IN a recent review¹ of Mr. Lecky's brilliant treatise on Democracy and Liberty, Mr. John Morley thus sums up the modern military problem: “What is the secret of the operation which places a ballot paper in one hand of every citizen, and at the same instant a rifle in the other? . . . No other effect of democracy is comparable with this, no other so surprising, no other so widely at variance with confident and “reasoned anticipations.”²

Such an opinion expressed by a writer who by a philosophic study of history added to practical experience as a statesman is qualified, in no ordinary degree, to bring the lessons of the past to bear on the problems of the present time, may well give food for reflection. The conclusion which must be drawn from the article, of which the above extract forms part, is that, in the deliberate opinion of a practical politician, the tendency of modern democracy is towards militarism, and it is small wonder that the disciple of Mill and the contemporary of Herbert Spencer regards the prospect with dismay. But it may well be enquired whether there is any real ground for supposing that the modern voter is

¹ See the *Nineteenth Century*, May, 1896, p. 719.

² Compare with this statement the following sentence on p. 216 of the *Edinburgh Review*, of July, 1896:—“That amazing phase of modern democracy, “universal suffrage giving its sanction to universal military service.”

enamoured of universal military service as an abstract principle. Neither in Great Britain nor in America is there discernible, as yet, the least desire on the part of the electorate, to substitute a nation-in-arms for the modest military and naval establishments which hitherto have sufficed to do the nation's work; while it can hardly be denied that it is the stern logic of facts, rather than the pursuit of any great moral idea, which has converted the continent of Europe into a collection of armed camps. That this is the case, a short examination of facts will plainly show.

Jena and the Treaty of Tilsit were matters of history, and Prussia had drained to the dregs the cup of humiliation ere Stein, Hardenberg, and Scharnhorst could initiate the system which, sixty years later, was to revolutionize warfare, and affect more widely than can yet be foreseen the future of mankind. During the long period of peace which succeeded Waterloo, Prussia, for two strong reasons, was willing still to endure the burdens of a system which had enabled her during the War of Liberation, with a population of less than ten millions, to place in the field an effective army of some 350,000 combatants. In the first place, Napoleon's policy of forming into thirty-six kingdoms and duchies the 300 independent States—"that chaos upheld by Providence"—which represented the fragments of the Holy Roman Empire, had led to the creation of a Germanic Confederation, which it was clear to all statesmen must eventually fall under the hegemony of either Austria or Prussia. Secondly, to afford any hope of success in this rivalry, a strong military establishment was essential, and this Prussia was unable to afford without having recourse to the principle of compulsory service. But, in spite of her sacrifices, she had yet to learn by bitter experience that her means were still inadequate for the fulfilment of her ambition. In 1850, Frederick William IV., yielding to his people's importunity, at last summoned courage to challenge Austria's right of interference in the affairs of the purely German States, only to find too late that his military system failed him signally in the hour of need. The bloodless capitulation of Olmütz, as the resulting compact with Austria has aptly been styled, crushed for the time Prussia's nascent hopes. Of the cause of this great humiliation, and of the failure of that military system which in the past had stood the test of war, and which in the near future was still to prove itself irresistible, there can be but one explanation. Great as were the sacrifices to which the nation had willingly submitted hitherto, that complete negation of self which the term a "nation-in-arms" implies, had not prior to the year 1857 been, as a principle, accepted by or forced upon the people of Prussia.¹ From motives of economy the peace establishment of the Army remained still at the number which had been originally fixed in 1815, namely, about 150,000 officers and men, the period of service with the colours being three years, that in the Reserve two, while liability for service in Landwehr

¹ The population of Prussia in 1850 was approximately 17,000,000, and the number of youths annually becoming available for military service about 200,000. As the annual contingent of recruits wanted was only 40,000, it is evident that comparatively a small portion of the nation was, at this time, passed through the ranks.

cadres continued for another fourteen years. It followed, therefore, that the mobilisation of the field army for any great effort was dependent largely on the Landwehr, that is, on men who had lost touch in a considerable degree with military experience. In 1812, and again in 1815, the inconvenience of this arrangement was, it is true, scarcely felt, owing to the wave of enthusiastic patriotism which swept the manhood of the nation into the ranks, but it soon became evident that any such system, when tested in circumstances of less provocation than had then existed, precluded both rapidity of mobilisation and efficiency in the field. The remedy was obvious. In order that Prussia might be in a position boldly to proclaim, and successfully to defend what she regarded as her rights in the Councils of Germany and of Europe, it was before all else necessary that the field army should be made independent of the Landwehr, to which force would be relegated the less arduous duties of garrisoning fortresses and guarding the lines of communication of the troops in front line. But the desired end could be attained only by augmenting considerably the number of cadres existing in peace-time and by increasing the period of Reserve service; in other words, by imposing on the nation fresh burdens of taxation and of personal inconvenience.¹ Nor were these obligations the least of the evils entailed by a re-organisation of the military forces on the lines indicated. During the previous years of peace, the principles of constitutional government and of individual liberty, as the terms are understood in England, had throughout Germany gained a devoted band of supporters, whose numbers had been materially increased by the events of the Year of Revolution, as 1848 has been termed. This party, drawing its inspiration from English history and from English political writers, not unnaturally felt a deep mistrust of a Standing Army, uncontrolled by constitutional safeguards. Nor were these apprehensions entertained without good reason.

In 1848, the youth of the nation serving with the colours had been used by the Court party to resist the just and moderate measures of reform then demanded by the people. The young soldiers, fast held in the iron grip of discipline, had not hesitated to obey their officers when ordered by them to fire on the agitators in the streets of Berlin and elsewhere. On the other hand, the spirit of progress and reform which at this period spread over Europe had permeated the ranks of those Landwehr cadres which were called out for service, and with them the military authorities were, on more than one occasion, forced to employ severe measures of coercion, in order to obtain obedience to their will.

Attention must also be directed to the fact that, at the period now under consideration, the Landwehr units were officered chiefly by members

¹ One of the first acts of William I., on taking over the reins of Government in 1857, was to raise the strength of the annual contingent to 63,000 recruits. The peace establishment of the Army was, by this means, increased to 223,000 officers and men, and the war establishment from 530,000 men to 781,000. The period of service in the Reserve was, at the same time, increased by two years. It was this augmentation of the land forces which during the succeeding eight years formed the bone of contention between King and Parliament.

of the large and constantly-increasing commercial middle-class of Prussia, who formed the bulk of the one-year volunteers in the Army; while the officers of the permanent force, on the other hand, were still drawn almost exclusively from the aristocratic families, on which the House of Hohenzollern had lavished favours in the past, and to which it naturally turned for assistance in its endeavours to stem the growing tide of democracy.

An increase to the Standing Army practically at the expense of the Landwehr element meant, therefore, not merely new financial burdens, but also a dangerous menace to the newly-formed Parliament, which, it was fondly hoped, was to prove the custodian of the people's rights. In recent years it has been somewhat the fashion to regard the Prussian Liberals who, some five-and-thirty years ago, manfully withstood the demands of the military party and of successive ministers of the Crown as a mere factious body of partisans wanting in public spirit, and blind to the true interests of their country. Sight has, to some extent, been lost of the fact that these men represented at that time the true sentiments and aspirations of the nation.¹ They were, in truth, not a whit less patriotic than the most conservative squire of Pomerania, or the fiercest supporter of the theory of the divine origin of royal authority; but to them it seemed that even the long-wished-for unity of Germany might be won at too high a price, if so great a consummation could be obtained, only by the loss of individual liberty.

It is no mere fancy which has compared the struggle for freedom in Prussia at this period, to the long strife which, in the seventeenth century, rent England through years of civil war, and was ended only by the glorious revolution of 1688. Bismarck's success is as indelibly impressed on the history of his country, and of the world, as is Stafford's failure, for it was his high-handed proceedings alone which made possible the preparation by Von Roon of that marvellous machine which, a few years later, was to be used by Moltke with so tremendous an effect. Langensalza and Königgrätz, Wörth and Sedan, had been fought and won, and France had been shorn of two of her fairest provinces before the world realised with amazement that mere Armies, largely composed though they were of war-worn veterans, were quite unable to withstand the organisation and the might of a nation-in-arms.

In succeeding chapters we shall endeavour to ascertain the causes of the success of Scharnhorst's system, when fully developed, over all other military methods, and the extent to which national life is affected by its adoption; but, in all such investigations, it is essential to keep constantly

¹ In March, 1862, the Prussian Ministry was defeated in the Chamber of Deputies, for the third or fourth time, on the Army Estimates, there being an adverse majority of 171 votes to 143. The Chambers were at once dissolved by the King. The new Lower Chamber was even more hostile to any increase in the Army than had been the previous one, and protested unanimously against the action of the Upper Chamber, which had accepted the military budget, in spite of its own action in refusing it. In September of this year, Bismarck was appointed President of the Cabinet, and henceforward carried on the government without paying any attention to the protests of the Chamber of Deputies.

before the mind, the fact that the military system now in vogue on the Continent, was in the beginning no natural development of national life, and that its growth of late years is due to circumstances which are now beyond the control of statesmen and democracies. In the words of a recent French writer:—"To watch and arm, when aware of being "threatened, are instinctive acts; nations, like individuals, obey this "instinct. This is the explanation of the labours accomplished in our "country to increase our military resources, and keep the country ready "for any eventuality."¹

For Continental nations the vast armaments of the present day are as essential to existence as is its shell to the tortoise, or its quills to the fretful porcupine.

The unscrupulous lust of conquest, and the utter disregard of the rights of others which marked the careers of Louis Quatorze and Napoleon, may, with reason, be indicated as the indirect causes of the omnipotence of militarism in Europe at the present day. Prussia was, perhaps, but fulfilling her destiny, and preparing for an act of Divine Justice, in arming, as she did, the bulk of her manhood; but, defend her action as we may, the incontestable fact remains, that the not unworthy ambitions of that single State have, in truth, like Frankenstein of old, fashioned a monster, which from year to year increases its demands, and threatens in the end to overwhelm those who erstwhile gave it being.

CHAPTER II.²

"The old order changeth, yielding place to new,
And God fulfils himself in many ways."—*Tennyson*.

Between the life of a nation and its military institutions there exists a connection too obvious to escape the notice of the most casual observer. In none other of the varied expressions of national existence is the genius of a people so made manifest, as in the steps which it takes, in the many vicissitudes of its history, to protect its material interests, both by sea and by land, against external interference. Religion and art, literature and commerce, each in its own degree influences the character of races and the progress of the world; but, pending the time when ambition and revenge, malice and uncharitableness no longer contribute their share to the sum of human misery, it is by the power of the sword alone that

¹ "Les Allemands," par Père Didon, p. 219.

² In writing this chapter the following works have, amongst others, been consulted:—

Grote's History of Greece.

Niebuhr's and Merivale's Histories of Rome.

Crowe's History of France.

"L'Accroissement successif des Armées permanentes," par Général Brialmont. Brussels, 1876.

"Heeresverfassungen und Völkerleben," von Max Jähns. Berlin, 1885.

JOURNALS of Royal United Service Institution.

"Armed Strengths of Various Countries."—Published by Intelligence Branch.

Gibbon's "Decline and Fall of the Roman Empire."

mankind can ever hope to win, and, when won, to retain, that freedom of thought and action which makes possible any hope of true development. To Goethe has been attributed the remark that it is by its legal and military institutions that the condition of a country can best be judged; and if it were on mere externals that the welfare of States depended, doubtless this aphorism could be accepted as of universal application. History, however, teems with instances of nations who, through decades have prided themselves on the possession of laws which make for freedom, and of armies and navies representing glorious traditions, when all the while public spirit and valour, without which all institutions are but empty forms, were either dead or so decayed as to render assured the success of younger and more vigorous adversaries.

The Carthaginian admirals, confident in ships and crews which for generations had been the admiration of the world, doubtless regarded with something akin to amusement Rome's clumsy quinqueremes and the ungainly efforts of her land-trained rowers. But it was not in his *matériel* or in mere professional skill that Duilius trusted for victory, when, on that eventful day some 2,000 years ago, he bore down on the hostile fleet off Mylae. The long boarding-bridges carried on each Roman ship prove that in him burned the same spirit that fired Nelson at the battle of St. Vincent. To lay alongside and board, not to indulge in elaborate manœuvres, was the main object of the Roman, as it was of the British commander; and success was the inevitable result of their operations. Rome in her turn learned by bitter experience that the organisation, the skill-at-arms, and the discipline for which her legions were ever famed, were in the end unavailing to save her from destruction when wealth, luxury, and Imperial despotism had poisoned the whole current of her national life.

It has, however, been reserved for modern times to furnish perhaps the most striking instances to be found in the pages of history of nations, which preferred to trust blindly in the traditions of a glorious past, rather than resolutely to face the problems which an age of revolution and change brings in its train. In 1806, the Prussian soldiers already doomed to destruction, on whom Napoleon gazed from the hill above Jena, were to all outward appearance as formidable as their fathers who, less than half a century earlier, had under the great Frederick defied half Europe and gained such victories as Hohenfriedberg, Rossbach, and Leuthen; while sixty-four years later, it required Wörth, Gravelotte, and Sedan to prove to Europe that the Army which bore on its standards such words as Marengo, Austerlitz, and Wagram, and which could recall the glories of 1814, had lost that supremacy which from the time of Napoleon had been its proud possession.

Such instances, and many others which might be added, go to prove how fatally misleading may be an estimate of the fighting value of a country which does not give due weight to those moral qualities, which are the true source of strength. But it is just these moral forces which, in the quiet times of peace, it is almost impossible, even for the keenest

observer rightly to appraise. To obtain, therefore, a clear insight into the various systems which the ingenuity of man has devised as a means either of protecting his own interests or threatening those of others, it is essential that we should apply to them the infallible test of war. As, in the case of an individual, it is some sudden peril which best proves his worth, so it is war which, in the phraseology of the churchmen, makes evident the strength of that inward and spiritual grace, which must ever be the true motive power of all worthy action.

For the statesman, as well as for the military student, it is, therefore, a matter of more than passing interest to enquire not only into the forms which, in varying circumstances and at different periods, States have applied to their naval and military establishments, but also to ascertain the extent to which the sacrifices made have affected the national character, and further to investigate the causes of the ultimate failure or success of any particular system. In the present chapter, however, it is proposed to discuss only the purely military aspect of this problem, leaving other considerations to be dealt with later on.

Before commencing this enquiry, it is, perhaps, advisable to explain briefly the method which it is proposed to adopt in conducting it. Our first aim will be to trace the gradual evolution of the military forces of various States at different periods of their existence, hoping thus to arrive at a scientific explanation of the various forms which they have assumed. In the course of this investigation we shall also attempt to show that, inasmuch as there are but two fundamental methods of obtaining soldiers, namely, by voluntary service and by compulsion, so a Militia and a Standing Army are the only two natural types of a military force.

If, further, we can demonstrate that a Militia, to be effective, must be based on universal military service, and, similarly, that the intrinsic value of a Standing Army depends on the strict observance of the principle of voluntary service, we shall, by a careful examination of both types, arrive at a truer estimate of the military advantages, or the reverse, which a State derives from either voluntary or compulsory service, than by any other means.

1st Period.

SAVAGE WARFARE.

To the condition of affairs which exists, or has existed, in communities which have not yet learnt the advantage or the necessity of submission to a central authority it is hardly necessary to refer, for in such cases military institutions cannot be said to exist. In a state of society where every man's hand is against his fellow, it is obvious that skill in the use of warlike weapons is a primary condition of existence, and, accordingly, by the shepherds of Thibet and by the Tuaregs of the Sahara, as well as by the robber-clans which roam over the steppes of Asia, military service is, at the present day, regarded as Nature's first law. When, therefore, a common danger, such as the advance of civilisation, compels united action on the part of a certain number of

such clans or tribes, it requires only some preconcerted signal to convert the gentle herdsman or agriculturist into the grim warrior. Like Cadmean hosts, armies seem to spring from mother-earth; but, as every officer with Afghan experience can testify, these forces have in them no more element of permanency than the new-fallen snows on a sunny hill-side. It is not, however, our present purpose to deal with these primitive methods of warfare, save to enquire into the military system best suited for a civilised nation, whose soldiers and sailors are constantly employed in subduing and holding in check, all the world over, the remaining elements of barbarism. In such warfare it is evident that the chief difficulties to be overcome are those which Nature herself imposes, this being more than ever the case since arms of precision have given to civilisation an overwhelming advantage over barbarism. Scarcity of communications, especially in mountainous countries; a total lack of supplies in the scene of operations itself, which entails the necessities of life being pushed up from some distant base; and, as often as not, a pestilential climate, are all factors which combine to limit the numbers of an expeditionary force to the barest minimum which can with safety execute the task in hand. To obtain quality, rather than quantity, should, therefore, be the guiding principle of an administration whose troops are likely to be, in the ordinary course of events, pitted against savage or semi-savage foes. The folly of employing for such warfare immature youths or unwilling conscripts is, indeed, too obvious to need demonstration; but the man, whom prudence and true economy alike demand for such work, is, unfortunately, a paragon not easily procured in any country.

He must be a volunteer in the truest sense of the word, who enlists, not merely because employment at home is difficult to obtain, but because a love of adventure impels him to seek a military career. Of robust physique and in the prime of life, he should combine temperate habits with a constitutional ardour which no obstacles can withstand, and with a lightness of heart which adversity cannot depress. Self-reliance and independence of character are requisite to enable him to bear with calmness whatever burden of responsibility fortune may have in store for him; but, none the less, the spirit of discipline must be so engrained in him as to be almost a second nature. Above all other considerations, uprightness of mind and singleness of purpose, which, in the hour of victory, will win for the conqueror the respect, if not the affection, of the vanquished, are essential qualities for the men whose destiny it is to carry the light of civilisation into the dark places of the earth. To expect that any military system will produce an army of such soldiers is obviously to seek the impossible; but it is certain that no force, in which the moral and physical qualities above indicated are not abundantly found, will ever be a worthy instrument of a colonising or a civilising nation; and it is equally certain that no country will ever produce such a force, where free laws, a liberal system of education, and the pursuit of lofty ideals do not co-exist.

2nd Period.

HOME DEFENCE.

Turning now to what may be described as the second period in the evolution of a nation, namely, that when some one tribe, having waxed great at the expense of others and having firmly established its hegemony over its immediate neighbours, introduces some form of state-government, we find much of military interest which attracts our attention, for it is now for the first time that a national Army can be said to exist. It is, of course, impossible to define, exactly where in the history of a people the condition of tribal chaos ends and the period of state-life commences; just as, in the case of an individual, the line of demarcation between childhood and boyhood is a purely arbitrary one; but, for purposes of analysis, some such distinction as has been indicated above will be found to be a matter of great convenience. From the political point of view the period to which we now refer is marked chiefly by the federative process which slowly but surely welds into a homogeneous whole the various parts, for which community of race or geographical situation has plainly marked out a future national existence.

The league which Romulus succeeded in effecting between the three tribes of Romans, Sabines, and Luceres formed the stem on which the future Empire of Rome was to grow; to Theseus was ascribed by the Athenians the glory of first uniting into one political body the twelve independent States into which Cecrops had divided Attica; while for the Dorian conquerors of Lacedæmon the laws of Lycurgus fashioned that singular constitution which was to be at once the wonder and the curse of ancient Greece. In more modern times the great conqueror of the Saracens, Charles Martel, must receive whatever credit is due for evolving some sort of order out of the chaos into which the destruction of the Roman Empire of the West had plunged the world by the foundation of that system of government which, under the name of feudalism, has affected more or less vitally the destinies of most European countries.

As might be expected, the period of development which, in a primitive state of society, succeeds the establishment of any form of state-government is distinguished chiefly by a constant succession of wars with neighbouring communities and leagues and, as often as not, by frequent internal troubles of a political nature. From the military point of view this period is, therefore, one when home defence is the most prominent national duty, external pressure being all the while severely felt. Thus in the history of Rome a series of wars with Samnites, Latins, Etruscans, and Volscians, and later with the Greek settlements in the south of the Peninsula, marks the period during which the future mistress of the world was spreading her influence throughout Italy. On the other hand, the growth of the small commonwealths of Greece was, throughout their existence, hampered by the simultaneous rise of two States which, though diametrically opposed in all the essentials of government, were for generations of almost equal fighting value. Accordingly the history of ancient Greece is, to a large extent, but a narrative of the suicidal wars which

Athens and Sparta waged against each other; nor had these States settled, once and for all, the question of hegemony even at the epoch when Philip of Macedon, and after him Imperial Rome, appeared on the scene to assume for them the direction of their destinies. But, however much effect environment may have on the fate of nations, it is a most noteworthy fact that, in the elementary period of their history, all the nations, of whose genesis we have records, gave to their military institutions an almost exactly similar form.

Military service, so far from being regarded as in any sense a burden, was the first and most highly-valued privilege of the free burgher. To be enrolled in the ranks of the *hoplites*, or heavy-armed infantry of Sparta or of Athens, or in the legions of Rome, was the outward mark of full citizenship—a privilege which in the two latter States was, by the legislation of Solon and of Romulus, confined originally to the land-owning class. Moreover, there can be but little doubt that the agrarian reforms of Lycurgus at Sparta, the extent and the meaning of which are unfortunately involved in some obscurity, represent an attempt to bring into the closest connection military service and land tenure, a principle which may be said to be the very ground-rock on which feudalism was based. To artisans and the wage-earning class the privilege of serving was denied, as their stake in the State was not considered sufficient to ensure bravery in war or loyalty in peace. The material, therefore, which formed the Militias of the ancient Republics and of the feudal States, before the very being of the latter had been blighted by the pretensions of an aristocratic caste, was both morally and physically the best which the country could produce. But in the nature of things, it stands to reason that a State which requires a strong defensive force, and at the same time makes military service a condition of citizenship, cannot long allow this privilege to remain in the hands of one class alone, and accordingly surprise cannot be felt that, in a flourishing community, a wide extension of the franchise soon becomes a military necessity. In Rome and at Athens this necessary measure was effected by the reforms of Servius Tullius and Kleisthenes, respectively, both these legislators distributing the citizens into classes according to the amount of their personal property, thus putting the commercial classes on an equality with the land-owners. Nor did the extension of the franchise stop here. Of Rome it may even be asserted that this question acted, throughout her earlier history, as the gauge, which plainly indicated the external pressure to which she was exposed at any particular epoch. Thus during the first Punic war, the property qualification for service, and hence for the franchise as well, was considerably lowered, and when, in the death struggle with Hannibal, the fearful loss of life to which the Roman armies had been exposed at the battles of the Ticinus, the Trebia, Trasimene Lake, and Cannae,¹ had strained to the utmost the resources of the Republic, slaves even were enrolled in the legions and promised their freedom as a reward for bravery in the field.

¹ The Roman losses in these battles alone have been estimated at 120,000 men.

At the same time, the desperate crisis in the history of Rome, to which reference has just been made, brought into prominence the enormous staying power of a State which takes care that all its children shall receive some military training and, which by opening a little wider the door which leads to citizenship, can obtain a practically limitless supply of recruits. During the war with Hannibal, Roman historians have calculated that their country's losses in the field alone, amounted to not less than 300,000 men, and yet, notwithstanding the revolt of nearly the whole of Southern Italy, the Republic was able, not only to endure for fifteen years the burden of a defensive war at home, but also to despatch to Spain no less than three separate armies, to maintain, during two years, in Sicily a war which involved so tremendous an operation as the siege and capture of Syracuse, a city which in point of wealth, size, and civilisation was almost the equal of Rome herself; and, in the end, to attack Carthage in her own dominions, and, at Zama to crush for ever that most formidable rival. Before the end of the second Punic war, Rome had in the field no less than twenty-three legions, and serving in Italy, Sicily, Sardinia, and Spain were in all some 210,000 of her soldiers. But the advantage of numbers is not the only one which a state-militia system confers. Service being regarded as a privilege, it is natural that pay for the troops is an expense which the State is altogether spared, and the Roman, Greek, and feudal military systems provided, therefore, a most excellent raw material at a minimum of cost. Nor, during the period of national existence now under review, does the expense of preparing the army for the field appear to have been at all considerable. To become skilful with his arms, by gymnastics to harden his muscles, and to learn his military exercises, was a necessary part of the education imposed by the State on every free citizen. At Rome and at Athens, a Campus Martius, a Gymnasium, or a Palaestrum was, it is true, set aside by the State as the training ground of the youth of the country, just as later, in England butts for archery were provided for each village by the feudal lord; but the actual method of training appears to have been in all cases, conducted on individual lines, the veterans of former campaigns delighting to instruct the young idea in the use of the weapons they had loved so well and had doubtless wielded to such good effect.

Such a method of training possessed, indeed, two considerable advantages over any other, as not only did the future soldier obtain his necessary acquaintance with the rudiments of the military art at a time when the mind is most receptive, and when the growing limbs are most benefited by a systematic course of scientific exercises; but also, on reaching maturity, his time could be employed more profitably both for himself and for the State than in acquiring the somewhat dull and unedifying lessons of the drill-ground. Further it is impossible to resist the conclusion that much of that exclusive and self-sacrificing patriotism, which was in early times so conspicuous in Romans and Athenians alike, was due to the feeling which the free boy acquired, as soon as his mind was capable of receiving any impressions at all, that in due time he might be called on to fight "for the ashes of his fathers, and the

"temples of his gods" and, if need be, give his life in their defence. It is impossible that such a feeling should not have spread over his early days, as it were, a halo of romance.

But it was not personal service alone that the citizen of Rome and Athens freely and gladly gave his country in the hour of need. The classification already noticed, according to the amount of property which a man possessed, made it possible for each class to subscribe some of the *matériel* of war according to its substance. In some cases the soldier provided his own arms, the members of the richest class, which formed the cavalry, supplying in addition a war-horse with its furniture; while, at Athens, by a certain number of the most wealthy and important citizens even the outfit of a warship was regarded as *liturgy* or State-service. In feudal times, also a very similar principle obtained, the amount of land which was held in fee determining originally not only the number of men which the vassal undertook to produce at the call of his lord, but also the nature of their equipment.

The similarity already pointed out in the military systems of States in an elementary stage of development further holds good when we come to consider the age at which liability for military service commenced, and the period of its duration.

At Athens, the youth of the country was on reaching the age of eighteen paraded in the national theatre and there solemnly sworn in to the service of the State, his name being at the same time placed on the rolls of his *phyle*; at seventeen the Roman boy first came under the Censor's cognisance and was by him entered, as a *junior*, on the musters of his local *century*, which represented at once the smallest political, as well as military, unit in the constitution; while at twenty, the Spartan recruit was at length considered to have fulfilled the object of his existence, namely, fitness to take his place in the ranks of his country's army. In all these States, liability for field service appears to have ceased at the forty-fifth or forty-sixth year, though in case of actual invasion or national emergency all citizens could be called on up to the age of sixty, veterans of this class being styled at Rome *seniors*.

The only other striking advantage of these Militia systems which requires special mention is the complete localisation of the military forces which distinguishes them all. In every one of the countries with which we have been dealing the military unit corresponded exactly with the political divisions of the State, or, rather, it would be more correct to say that military requirements originally determined the districts into which the country was, for political purposes, divided. The advantages of such a system are, from the military point of view, easily to be understood, as not only do those whose interests in peace are most intimately connected become comrades in war, but the chief whose authority they have been accustomed to recognise in civil life becomes at once, on mobilisation, their military superior, this trait of the system being, perhaps, even more noticeable in the feudal armies than in those of the more ancient States. A further benefit consequent on strict localisation consists in the simplicity of the machinery required for

assembling the various local units of the army, and in the rapidity and certainty with which the whole business of mobilisation can be effected.

To sum up in as few words as possible the advantages of these old-world Militia systems, the points in them which strike us as being most worthy of commendation and imitation are, in the first place, the high esteem, due to military service being regarded as a privilege of citizenship which no slave or malefactor could enjoy, in which the soldier's profession was regarded; and, secondly, the splendid results of the individual training enjoyed by Greek and Roman youth alike—a training which produced not only a race of athletes such as the world has seldom seen, but, what is perhaps of even greater importance, instilled into the minds of the future citizens those principles of patriotism, obedience, and self-respect, whose absence precludes the downfall of Empires and Republics alike. Whatever the disadvantages of this form of service may be from the military point of view, and to these we shall refer later, it is incontestable that this system is representative of the period when, more than ever afterwards, public spirit, love of country, and a negation of all selfish interests dictated the action of the citizens of both Rome and Athens, and, further, that its achievements form a glorious page in the world's history.

It was with an army raised by methods such as those just described that Miltiades, undaunted by the tremendous odds of ten to one against him, faced the Persian hosts at Marathon, just as ten years later the crowning glory of Salamis was—

“Won by the unambitious heart and hand
Of a proud, brotherly, and civic band.”¹

With her citizen army Rome conquered Italy, and, though at times sore stricken and well-nigh overcome, finally drove from her shores such daring adversaries as Pyrrhus and Hannibal; while at Crécy, at Poitiers, and again at Agincourt, the chivalry of France learned the worth of those “good yeomen, whose limbs were made in England.”²

Nor, in recounting the triumphs won by the citizen-forces of the world, must we omit to refer to the British merchant-seamen who met and destroyed the Armada of Spain; nor to relate how at Valmy the veteran forces of Brunswick recoiled before the levies of a free France; nor how Napoleon experienced to his cost, during years of warfare in the Peninsula, the strength of a nation struggling for its freedom.

The fact that, in some of the instances quoted, no sort of Militia organisation existed at the commencement of hostilities only makes clearer the tremendous risk which a nation or monarch runs who, by interference, raises against himself a genuine people's war.

Had Marshal Niel's measure of 1868, which introduced into France, under the name of a *garde mobile*, a real Militia system, been carried into effect ten or twenty years sooner, so that in 1870 the organisation of that force might have been a reality instead of being embryonic only, it is very

¹ “Childe Harold's Pilgrimage,” Canto III., Stanza LXIV.

² “Henry V.,” Act III., Scene I.

certain that the German task in the later phases of that war would have been a very much severer one than it actually was. It is also equally sure that, had no such organisation existed at all, Gambetta's fiery oratory would have been in vain, and France's heroic resistance to the German invader must have been much curtailed.

But however splendid the record which can be claimed for the Militias of the world, and however great an advantage to the State that form of service may be, it must with sorrow be confessed that its limitations from the purely military point of view are both many and serious. Adam Smith in that work, which Hume designated the most valuable product of the human mind, has ably defined the distinction between a Militia and a Standing Army. "In a Militia," he writes, "the character 'of the labourer, artificer, or tradesman predominates over that of the 'soldier: in a Standing Army that of the soldier predominates over every 'other character.'¹ This being the case, it is obviously impossible to expect any high standard of military excellence in a force whose employment in war is occasional only and for which no permanent cadres exist in peace-time. The habit of subordination, the mutual reliance of all ranks on each other, which constant service together engenders, and the confidence which arises from the possession of an administration capable of supplying, in all circumstances, the daily needs of the troops, are all characteristics which are looked for in vain in a body of citizen-soldiers newly called out for service in view of some national emergency. But more deleterious still is the absence in the officers of all ranks, and especially in the highest leaders, of those habits of command and that skill in troop-leading which can be gained in peace only by constant and continuous practice on the drill ground or at manœuvres. What, for instance, could be more subversive of all military efficiency than the division of the command among the ten Athenian generals before Marathon, each one in rotation commanding the army for one day? Or what could be more confusing than the dual control of the consuls at Rome? What, again, are we to think of a military system which made it even possible that the butcher's son Varro, a man of whom it is expressly stated that he possessed no military experience, could be sent to oppose the greatest soldier of ancient times when men like Fabius Cunctator and the two elder Scipios were still serving the Republic?

But, although want of experience and many other shortcomings are noticeable in the early stages of any war, like that between the Romans and Samnites, or, in our own times, between the Northern and the Southern States of America, where both sides put in the field what is, in all its essentials, an army of Militia, still it is only when such a force is pitted against an army of professional soldiers, led by competent officers, that the defects of the Militia system are made fully evident.

With 30,000 infantry and 4,500 cavalry, drawn from that Army which his father Philip had established on a permanent basis and had rendered the best of its time, Alexander undertook the conquest of Asia, and at the

¹ "Wealth of Nations." Vol. III., Book V.

Granicus, at Issus, and at Arbela defeated the vast Eastern hordes opposed to him with a slaughter which appears incredible.¹ With truth has Lord Bacon written:—"Number itself importeth not much in armies "where the people are of weak courage, for (as Virgil says) it never troubles "a wolf how many the sheep be."

With a force of only 20,000 foot and 6,000 horse, veterans all of them who had become inured to hardship in the hard school of Spanish warfare, Hannibal entered Italy intent on conquest, at a time when the disposable force of Rome can have been scarcely less than 800,000 fighting men; and, in spite of only half-hearted support from his fellow-countrymen, maintained himself in that country for more than fifteen years, during which period his superiority in the field was practically uncontested.

In the year 52 B.C., Cæsar with 40,000 legionaries not only invested Vercingetorix and 80,000 Gauls in Alesia, but successfully repulsed the simultaneous attack of a quarter of a million of levies, whom that chieftain had summoned to his aid; and 1,900 years later, near the same spot, Werder with 40,000 Germans and 126 guns withstood during three whole days the desperate attempts of 150,000 French mobiles, under Bourbaki, to force the line of the Lisaine.

Lastly, to take a single instance from our own history, the superiority of a trained and disciplined force over unorganised courage, was, perhaps, never better illustrated than on that day in February, 1843, when Sir Charles Napier at Meeanee opposed his thin line of 1,800 sabres and bayonets to 35,000 of the most redoubtable warriors in Asia, and winning, conquered Seinde.

But it is not the want of training, of discipline, and of cohesion which constitutes the only weakness of a Militia force; for there are inherent in it other military defects which, however, may remain unnoticed as long as a nation maintains an attitude of passive defence. For a short campaign, and when his home and all that he prizes in life are immediately threatened, that man is indeed a craven who will not freely give his time, and if need be his life-blood, in the service of his country; but it is otherwise when a war drags on through years, it may be, and when the scene of operations is far removed from the citizen-soldier's own roof-tree.

"The siege of Veii," it has been said, "foreshadowed the fall of the "Roman Republic";² for it was then, 350 years after the founding of the city, that pay was first issued to the legionaries. In its inception, indeed, this remuneration was in no sense meant to act as an inducement to service, and the amount accordingly was regulated by the rate of agricultural wages current at the time. The element of professionalism having been, however, once introduced into the Army, it says much for Roman virtue and sense of duty that still another 150 years passed by

¹ At Issus the Army of Darius is said to have been between 500,000 and 600,000 strong. Its loss in the battle was estimated at 110,000; that of the Macedonians in killed being said to be 450 only.

² Merivale's *History of Rome*, p. 68.

before the citizens showed any marked disposition to avoid the burden, which military service had now become to them.

As long as the wars of the Republic had been confined within the shores of Italy, the ancient practice which compelled every burgher to serve a certain number of campaigns before he was eligible for public office was maintained. But from the moment that the Republic found itself compelled to enter on a policy which involved wars beyond seas, there arose a dilemma, which could not act otherwise than as an incentive to the government to modify the previous conditions of service.

Hitherto the domestic and commercial interests of the citizen-soldier had demanded that, during a campaign, he should be relieved from service at not infrequent intervals; and, as long as the scene of operations was near at hand, those constant reliefs, however undesirable in themselves from the military standpoint, were not difficult to arrange, owing to the magnificent roads with which Rome consistently followed her armies. But when sea-transport had also to be considered, the obligation on the State to continually despatch large drafts of men to and from its legions abroad assumed a very different aspect. Economic reasons alone would, therefore, have forced Rome at the epoch, when she was, so to say, entering on her career of Imperial conquest to reconsider the military system which had served her so well in the past, even had there not been another consideration, of perhaps more pressing a nature, which urged her to the same conclusion.

The existence of a sea-frontier limits, to a considerable extent, the number of troops which an insular or peninsular State can throw on to an enemy's shore and maintain there for any length of time; for to transport by sea 100,000 or 150,000 men, of whom a due proportion are cavalry and other mounted services, meant in the past, and means at the present day, the employment of an amount of shipping which none of the ancient States possessed, and which few modern Governments could readily lay their hands on. This problem of the limitations which the sea sets on the size of Armies is indeed one which, at the present time, might with profit be discussed by those qualified to form a judgment in the matter, as it is on a proper understanding on this point that the defensive and offensive policy of an insular Power should be based, as far as its land forces alone are concerned. But the matter has been referred to here only because it is necessary to emphasize the fact that without question sea-transport does, in certain circumstances, set limits on the number of men employed abroad, and hence that the advisability of obtaining a skilled and willing soldier, in preference to a half-trained and perhaps reluctant conscript, is far more obvious in the case of States, which necessarily send their soldiers beyond seas, than it is with those whose Armies are compelled, for offensive action, merely to step across an imaginary frontier-line marked by posts or stones.

When, therefore, Roman Armies, during the first Punic war, first left Italian soil in order to engage the forces of Carthage in Sicily, we are hardly surprised to find that the administrators of the Republic began casting about for devices by means of which the amateur elements in the

legions might be lessened, and their professional character made more pronounced; and that now for the first time we read of substitutions, dotations, and even mercenary service being accepted as a necessity, so that a few years later we are prepared to find the younger Scipio in Spain, during the second Punic war, at the head of a purely professional force, the members of which were induced to serve by promises of good pay and by hopes of plunder. Doubtless, as General Brialmont has pointed out, the decadence of manners and the loss of much of the pristine purity which had characterised the political institutions of Rome account, to some extent, for the partial substitution of professional service for State service, which took place during the sixth century after the founding of the city.

"L'histoire de la Grèce," writes the distinguished Belgian General, "celle de Rome et de tous les États qui ont joué un grand rôle dans le monde, prouvent que la décadence des mœurs et l'abaissement des caractères ont toujours conduit à la décadence des institutions militaires, en introduisant dans les armées des éléments impurs (remplaçants ou mercenaires étrangers), des idées de luxe, des habitudes de désordre et de pratiques contraires aux devoirs et à l'honneur militaires. À son tour, la décadence des armées a toujours réagi sur le système politique, en ouvrant l'ère des troubles et des guerres civiles, qui aboutit nécessairement au despotisme, aux mouvements séditionnels dans les camps, aux coups d'État militaires, en un mot, au règne des préteurs." ¹

But however much individual reluctance to serve may, in the case of Rome, have conduced to the abandonment of the pure Militia form of service, it is impossible to avoid the conclusion that, both on economical and on military grounds, the change was inevitable.

Before, however, we proceed to enquire into the various forms which States have applied to their military institutions when once they have abandoned their earlier and purer traditions, it may not be unprofitable to discuss broadly the essential elements of a good and workable Militia system, and further to pass in review the considerations which should guide statesmen, whose duty it may be to face the question of a war with a State which depends on that form of service for its defence. Universal military service may, indeed, be said to be the very essence of the sort of Militia which has been under examination in the previous pages, as it is on the strict observance of this principle that that systematic organisation depends, which is one of the main elements of its strength and the very mainspring of the mobilisation machinery; that a scientific and impartial localisation of the force is made possible; and, lastly, that the weight of numbers is obtained, which counter-balances to some extent the inevitable want of training and of military experience. The actual amount of training which the force should receive and the efficiency of its organisation must depend entirely on the state of readiness which external circumstances demand; the individual training of the soldier

¹ "Causes et Effets de l'Accroissement successif des Armées permanentes," p. 41. Par le Général A. Brialmont. Brussels, 1876.

which distinguished the Greek and Roman system being, for instance, obviously sufficient as long as there is no chance of the army to which he belongs having to meet, at a moment's notice, a more highly-trained force or a more perfect organisation.

But the mere existence of a Philip of Macedon or a Hannibal means that the condition of readiness for war, hitherto regarded as sufficient, is no longer a guarantee of the safety of the State. Fresh sacrifices, therefore, are needed on the part of the citizens unless they would risk experiencing that, though—

“A thousand years scarce serve to form a State,

An hour may lay it in the dust.”¹

In any case, it is advisable that the officers of the ideal Militia should receive some more advanced instruction in military art, in order that, on mobilisation, they may possess a knowledge of the elements of military administration and of tactics, as on this knowledge the very being of an Army, as distinguished from an armed mob, depends; without it even victory being useless, as Edgehill and Bull's Run testify. Given a Militia organised on the lines indicated, there is one of its characteristics which must not be lost sight of by friend and foe alike. From the day such a force is mobilised it will, as weeks roll by, become more and more assimilated to an Army of Regulars, the rapidity with which this transformation is effected depending mainly on the amount of training officers and men have previously received and on the perfection which the State has given to its cadres in peace. The Ironsides who charged at Naseby and the heroes of Gettysburg were, for military prowess, worthy to be compared with the war-worn veterans of any Army or of any period in the world's history.

“Should the war in America drag out through another campaign,” wrote Adam Smith during England's war with her rebellious colony, “the American Militia may become in every respect a match for that Standing Army, of which the valour appeared, in the last war, at least not inferior to that of the hardiest veterans of France and Spain.”²

For a nation, therefore, which possesses a highly-organised and well-trained Regular Army not to attack, with its whole might and with the least possible delay, an adversary who depends on a body of pure Militia for his defence, and, having so attacked, not to push its advantage right home before he can organise and train his forces, is obviously to give away gratuitously the most sure chance of success.

Had Hannibal, after the battle of the Trasimene Lake or of Cannae, pushed straight for Rome, who can say that the history of the world would not have been completely changed? Or, again, had the Federal or the Confederate Government, at the commencement of the great War of Secession, possessed, besides its newly-raised Militia, a regularly-organised force of some 70,000 or 80,000 veterans, can anyone believe that the war would have dragged on through four weary years, entailing, as such prolongation did, a sacrifice of 800,000 human lives?

¹ “Childe Harold's Pilgrimage.” Canto II., Stanza LXXXIV.

² “Wealth of Nations,” Vol. III., Book V.

In the previous pages we have endeavoured to present, as impartially as possible, the arguments which can be adduced for or against a pure Militia system, because it is our belief that that form of service, to be really effective, necessarily implies universal military service. We have, further, attempted to show that the amount of training and organisation required in such a force cannot be arbitrarily defined, but must depend on circumstances which vary in every State.

Assuming, however, that both training and organisation are sufficient to enable a citizen-army to ward off the first blows directed against it by an enemy, or that any cause, such as a sea-frontier, precludes the possibility of a sudden stroke by the enemy at the very commencement of hostilities, we maintain that the *defensive* strength inherent in a Militia, based on universal military service, surpasses that to be found in any other form which can be given to the military institutions of a country.

Whereas the strength of Rome lay in her vast defensive power when attacked in Italy, the weak spot in the armour of Carthage was only then made manifest when the very heart of her Empire was assailed.

3rd Period.

FOREIGN WARS.

In discussing the defects inherent in a Militia, the points of advantage peculiar to a standing force of professional soldiers have been incidentally referred to. It is, in fact, hardly too much to assert that a permanent Army of trained and seasoned veterans is the exact antithesis, or, perhaps, some would say the complement, of a pure Militia force such as the ancient Republics possessed; the former possessing those very elements of discipline and cohesion, permanency of command, and a constant state of preparedness for war which the latter lacks; while a Militia system, on the other hand, based on universal military service is strong mainly in its capacity of placing in the field an almost unlimited number of soldiers, this question of men being, as we shall see directly, the chief difficulty with which the administrators of Standing Armies have ever had to contend.

We have already referred to the great contest for supremacy between Rome and Carthage as bringing into prominence the strength of the two systems, and we have further noticed that Rome, as soon as she entered on her course of Imperial conquest, and when she was freed from the external pressure which, during the centuries that she was consolidating her power in Italy, had constantly weighed on her, abandoned the Militia form of service as no longer suitable.

We do not propose, however, to discuss more fully the advantages for offensive warfare of a Standing Army over one in which the performance of military service is occasional only, as these are sufficiently obvious without need of further argument. Nor do we wish to deal further with the causes which, at a certain period in the history of almost all nations, have led to their giving up, either partially or totally, the Militia form of service in favour of a permanent force, except to insist on the theses to which expression has already been given, that, in the

first place, the only justification, on military grounds, of the change is the removal of that external danger which has hitherto necessitated the full strength of the State being applied to home defence; and secondly, that the creation of a permanent force implies, or should imply, an offensive¹ or Imperial policy on the part of the State which employs it.

In the course of our further investigations we shall endeavour to show that just as the defensive or Militia system should be reared on a basis of universal military service, so must voluntary enlistment be regarded as the natural foundation of a permanent force; and that in all cases where for political, social, or economic reasons, either of these two essential principles has not been strictly observed in organising the military forces of an Imperial State, confusion has ultimately been certain to arise, ending but too often in disaster.

Athens, confident in her supremacy at sea and blinded by foreign wars in Egypt, Cyprus, Sicily, and on the shores of the Ægean Sea which she waged so constantly from the time of Pericles onward abandoned the Militia system of the Marathonian time and, 150 years after the Persian wars, opposed Philip of Macedon with an army composed partly of paid citizens and partly of foreign mercenaries. In vain did Demosthenes, like Machiavelli at Florence 1,500 years later, endeavour to persuade his countrymen to revert to the old form of service, but his Philippics fell on deaf ears. The battle of Chaeronea crushed for ever the liberties of Greece, and henceforward that country was little better than first a Macedonian, then a Roman, province.

The Roman legions which, when comparatively few in number and still composed of free citizens voluntarily enlisted for long terms of service, carried their eagles to the confines of the known world, were helpless to stem the tide of barbaric invasion when, later, crowds of conscripts² and foreign mercenaries filled their ranks. France face to face with victorious Prussia attempted in 1868 to supplement her permanent forces

¹ The word "offensive" as here used does not include what may be termed the "strategical offensive," *e.g.*, the Prussian invasion of France in 1870, or the Federal attack on Richmond in 1864. It refers rather to wars waged with a view to Imperial aggrandisement, *e.g.*, our own wars in India and elsewhere, the later Napoleonic wars, and such operations as those now being carried on by Italy and Spain in Erythrea and Cuba.

Obviously an insular and a maritime State whose frontier should be the enemy's coast-line, no matter where that enemy may dwell, ought not to regard its Navy as a purely defensive force. The very term, a coast-defence vessel, implies a complete misunderstanding of the functions of a Navy. Home defence can be far more economically and just as efficiently organised on land by employing a Militia. Such a duty entrusted to a Navy can only hamper it in its proper functions.

² It is necessary to distinguish clearly between "universal military service" and "conscription." The former implies only the duty or privilege of the citizen to bear his part, if necessary, in the defence of his country, and, as we have seen, is an essential element of a pure Militia form of service. Conscription means any form of compulsion which is used in order to fill the ranks of a permanent force, that is, a force in which the military element is stronger in peace than the burgher element.

by creating a true Militia, thus acknowledging too late that a country's defence must ultimately be entrusted to the united efforts of all its citizens. In recent years, on the other hand, instances of the disastrous results of attempting to overcome savage or semi-savage tribes or to coerce rebellious colonies with a force raised on the principle of universal military service have been furnished at the expense of more than one European country.

The reasons which cause the citizens of civilised States, and especially the members of commercial communities, to hesitate to submit themselves and their children to any form of compulsory service till the necessity for it is most apparent are, indeed, not far to seek, and hence the absence of Militias in certain countries now and in the past can easily be accounted for; but what is not so obvious at once is the folly, from the military point of view, of entrusting the defence of a country solely to a Standing Army, if the danger which threatens it is one of any magnitude.

It has been already stated that one of the chief causes which justifies the creation of such a force is the fact that, for some reason or other, it is of primary importance that quality, rather than quantity, should be the main feature of its composition. Our forefathers, who during the period of the Great War had every opportunity of comparing the volunteer with the pressed man, estimated their relative value, roughly, at the ratio of one to three; and it is, therefore, needless to insist on the importance of observing the voluntary principle wherever the question of quality arises.

Given a sufficient inducement in the shape of pay or reward of any kind, it is safe to conclude that in every State fit for empire a certain number of volunteers, whether for the Naval or for the Military Service, will readily be forthcoming, the exact proportion of the population thus ready to engage themselves being fixed by the immutable laws of supply and demand. The number of sailors or soldiers serving, voluntarily, which any State can maintain is, therefore, obviously not a fixed quantity, but must be determined partly by the character and habits of the people, and partly by the wealth of the State. What the limitations are which economic laws set on the number of voluntary soldiers which any State can support is not easy to compute, but it is interesting to notice that a distinguished economist like Adam Smith has attempted to lay down a general rule of calculation:—"Among the civilised nations of modern Europe," he writes, "it is commonly computed that not more than one-hundredth part of the inhabitants of any country can be employed as soldiers, without ruin to the country which pays the expense of their services."¹

But however this may be, and the estimate does not seem an unreasonable one, it is quite certain that the resources of even the wealthiest of States do not suffice to attract and maintain more than a limited number of voluntarily enlisted sailors and soldiers, and well will

¹ "Wealth of Nations," Vol. III., Book V. Doubtless the author meant to include sailors in the number of paid men that a State can maintain.

it be for that State if it allows that maximum to dictate the scope of its imperial aspirations. If, as was the case in France both under Louis Quatorze and Napoleon, these aspirations are allowed too far to outrun the resources of the State, the absolutely inevitable result of such a policy is military degeneracy and ultimate disaster; for, in raising the Armies required for conquest, the voluntary principle of enlistment must sooner or later be abandoned, and recourse be had to conscription.

Unfortunately, however, questions of home defence cannot be treated like details of an imperial policy, as, when once the existence of a State is threatened, no limit can be assigned to the preparations which must be made to meet the impending danger. As the danger grows, so must the permanent forces of the State be increased, till almost certainly the point will be reached at which a system of compulsory service must be introduced.¹

Nor is the same result less certain to be brought about if some State, which has long since won its title to imperial greatness, and whose resources have hitherto amply sufficed for imperial police duties and for the inevitable small wars on distant frontiers, obstinately refuses to adopt or revive a true Militia form of service when the heart of the Empire is in the least threatened from without. The endeavour to throw the burden of both home defence and imperial protection on its permanent forces must end in military inefficiency and confusion; for those forces will have to be increased to such an extent that their quality must suffer, and, when it comes to a great war, one of the two duties entrusted to them will almost certainly be neglected, or, in other words, home defence will be guaranteed at the expense of imperial interests.

Never were the disastrous results of entrusting to a Standing Army two such distinct duties as we have described better illustrated than during the years when the great Empire of Rome was tottering to its fall. With a force which never exceeded 40,000 men, Cæsar conquered Gaul, Belgium, and part of Britain, and spread the terror of his name in the territories to the east of the Rhine; and at the time of Augustus 150,000 legionaries sufficed to enforce the *pax Romana* from the shores of Britain to the borders of Persia, and from the Danube to the Sahara. Yet three hundred years later this same duty could hardly be performed by the 450,000 conscripts and foreign mercenaries who owed allegiance to Constantine, and a few years later, again, even a larger number was unable to withstand the oncoming torrent of barbarism.²

¹ The enormous expense of the *matériel* of war at the present day, as represented by constant re-armaments, mobilisation stores, practice ammunition and the new inventions which are adopted from time to time by modern States, must be borne in mind when considering the problem of the cost of the national defence. This factor alone, by limiting the amount of money which any State can devote to the maintenance of the *personnel* makes it essential that the services of citizens shall be given free, where there is no natural check on the numbers employed.

² "Under the successors of Constantine, the complete force of the military establishment was computed at 645,000 soldiers." Gibbon's "Decline and Fall," Chap. XVII.

Nor can this disastrous loss of efficiency in the Armies of Rome be wondered at, if we consider the devices to which she at last had recourse in order to fill her legions with recruits. Writing of the reign of the Emperor Constantine—A.D. 320, about—Gibbon thus describes the military condition of the Empire:—

“The timid and luxurious inhabitants of a declining Empire must be allured into the Service by the hopes of profit, or compelled by the dread of punishment. The resources of the Roman treasury were exhausted by the increase of pay, by the repetition of donations, and by the invention of new emoluments and indulgences, which, in the opinion of the provincial youth, might compensate the hardships and dangers of a military life. Yet, although the stature was lowered,¹ although slaves, at least by a tacit connivance, were indiscriminately received into the ranks, the insurmountable difficulty of procuring a regular and adequate supply of volunteers obliged the Emperors to adopt more effectual and coercive measures. The lands bestowed on the veterans, as the free reward of their valour, were henceforward granted under a condition, which contains the first rudiments of the feudal tenures, that their sons, who succeeded to the inheritance, should devote themselves to the profession of arms, as soon as they attained the age of manhood; and their cowardly refusal was punished by the loss of honour, of fortune, or even of life. But, as the annual growth of the sons of the veterans bore a very small proportion to the demands of the Service, levies of men were frequently required from the provinces, and every proprietor was obliged either to take up arms, or to procure a substitute, or to purchase his exemption by the payment of a heavy fine. The sum of forty-two pieces of gold to which it was reduced ascertains the exorbitant price of volunteers and the reluctance with which the Government admitted of this alternative. Such was the horror of the profession of a soldier which had affected the minds of the degenerate Romans, that many of the youths of Italy and the provinces chose to cut off the fingers of their right hand to escape from being pressed into the Service; and this strange expedient was so commonly practised as to deserve the severe animadversion of the laws and a peculiar name in the Latin language.”

“The introduction of Barbarians into the Roman Armies became every day more universal, more necessary, and more fatal.” The result of such a system was inevitable. “Not a vestige,” goes on the same author, “was left of that severe simplicity which in the ages of freedom and victory, had distinguished the line of battle of a Roman Army from the confused host of an Asiatic monarch.”²

When things had come to such a pass, it surprises us indeed not that the Roman Empire perished in the end, but that its fall was deferred so long as it was. Had Rome herself when threatened at last by the fierce Barbarians of the North been protected as of old by the whole

¹ From 5 feet 10 inches, at which it had originally been fixed, to 5 feet 4½ inches.

² Gibbon's “Decline and Fall,” Chap. XVII.

body of her loyal sons, it is inconceivable that the utter degeneracy of the State and of its paid soldiers on the frontiers could ever have become an accomplished fact.

Or again, let us glance at the condition of the French Army in the period anterior to the terrible disasters of 1870.

Conscription, substitution, dotation, and bounties had, for generations, played as important a part in its organisation as they had in that of the Roman legions during the declining years of the Empire, to such straits had the administrators of the Second Empire been reduced by the necessity of constantly increasing the force on which the safety of the country wholly depended. And what was the result? "The Army," wrote Major Brackenbury just after the war, "consisted of men counting 'about five or six years' service, and of men bribed by extra pay and 'bounties to re-engage.' The individual soldier who could not avoid conscription by payment was regarded by his fellow-countrymen as 'a man not only without money but without credit.'"¹

Perhaps, however, the fatal results to the military efficiency of a country of allowing its permanent forces to grow unchecked are more strikingly exemplified where that growth has been caused rather by the insensate ambition and lust for conquest of some monarch, than by the defensive measures which have been gradually forced on some State during a long term of years, for the decay of the *moral* of an army is then both more rapid and more pronounced.

Under Louis XIV. the methods employed to obtain recruits were more reprehensible than perhaps at any other period in history. In spite of the general distress throughout France which drove men into the ranks merely to get food, we read of officers, shortly after the disaster of Ramillies, receiving commissions to obtain recruits as best they could, and, in consequence, organising hunts after the wretched peasants who in terror concealed themselves in forests and valleys, while in Paris and in other large towns the press-gang system and crimping were carried on openly.²

Can it be wondered at that Villars, at the beginning of the eighteenth century at the head of 120,000 or more troops, raised by the methods just described, was unable to approach the feats of arms which Condé and Turenne had performed fifty years previously with small Armies of 20,000 or even 10,000 volunteers? Or if doubt be felt by anyone as to the deterioration which invariably takes place in permanent forces from the moment that compulsion becomes the main principle of their formation, let him examine carefully the condition of the vast host of more than half-a-million men which Napoleon led into Russia in 1812 and he will

¹ JOURNAL of Royal United Service Institution, 1871, pp. 223-4.

² At the time when the Treaty of Ryswick was concluded, A.D. 1697, Louis XIV. had a Standing Army of 396,000 men, in addition to a considerable Navy. The population of France at this time was about twenty millions. There was therefore more than one soldier or sailor to every fifty inhabitants, or twice the number which Adam Smith regarded as a maximum.

find how complete was the demoralisation which reigned in it even at an early stage of the invasion.

Space forbids us to deal as fully as we should have wished with the devices employed, at different times and in various countries, to raise Standing Armies when for any reason the voluntary enlistment of the citizens has become impossible or has been considered inadvisable. Speaking broadly, they all resolve themselves into either a system of compulsion in some shape or form or the employment of foreign mercenaries. We cannot, however, do more than refer in the briefest terms to the Kshâtriyas and military castes of ancient India and Egypt, to the Janissaries of the Ottoman Empire, and the Mamelukes of Egypt, or to the military colonies which Rome, Austria, and Russia have employed, with more or less success, for the defence of distant frontiers; while, happily, it may be hoped that all such forms of mercenary service, as are implied by the terms Free Companies, Routiers, Écorcheurs, and German Legions, are now as obsolete as the arquebus or the cross-bow.

To summarise our argument, it is, briefly, as follows:—Where, for any reason, numbers are strictly limited, as, for instance, in a fleet or in a force raised strictly for offensive¹ warfare and for the defence of the outlying portions of a great Empire, true economy and every military consideration demands that enlistment shall be conducted on strictly voluntary lines. The best stamp of man that money can procure is, in fact, the cheapest soldier in the long run.² But we have also been led to the conclusion that the number of such men that any State can procure and maintain is fixed by certain immutable laws, and it is, therefore, contrary to every sound military and economic principle even to contemplate diverting such men from the task for which they are intended and are peculiarly fitted, and employing them for purely home-defence purposes, an object which can be not only much better, but also far more cheaply, compassed by resorting to a pure Militia form of service.

In a word, where numbers are limited by natural causes, permanent service and voluntary enlistment should be the rule, the efficiency of the permanent force rising or falling exactly in proportion as the voluntary principle is observed or disregarded. Where, on the other hand, there are no natural checks on the employment of numbers in the field, a Militia based on universal military service is the only rational form of national defence.

4th Period.

MODERN MILITARY SYSTEM.

In the first chapter we have referred to the system with which the name of Scharnhorst must ever remain connected, and have remarked how its inception was due, not to the action of the natural laws which govern the evolution of States and Armies alike, but to the violent

¹ See definition of this term on page 398.

² It may, perhaps, interest some readers to learn the extent to which our present method of enlistment gives us the stamp of man physically we want; and we have, therefore, given in Appendix I. certain extracts from the report of the Inspector-General of Recruiting, which bear on this matter.

ambition and the uncompromising diplomacy of Napoleon, and how its growth was fostered by the workings of that policy to which its author gave the apt appellation of Blood and Iron. Can, therefore, wonder be felt that the product of so unnatural a birth should be such as cannot scientifically be classified, and such as, in the ordinary course of nature, had never before had being? What must be described as the *only* two natural and pure forms of military service have been already examined and analysed to some extent, and we have further attempted to show not only what the proper and legitimate use of either form should be, but also the results to which their improper application must invariably lead.

That these two distinct forms should be found in close conjunction at various periods of the world's history is only to be expected, and is, moreover, quite in accordance with a scientific theory which attempts to deal with their origin and growth. Thus we are not surprised to read of the Ten Thousand immortals, who were undoubtedly members of a permanent military establishment, and in all probability picked volunteers, marching and fighting by the side of the vast levies raised by every arbitrary method, which formed the bulk of the host which Xerxes led into Greece. Nor at the period when Rome was insensibly transforming her old citizen-army into a force of professional soldiers, is it unnatural to find Prætorian and veteran cohorts; which may be said to be the germs of the later Standing Army, forming part of legions which in all else conformed to the Militia ideal.

In these cases the two types are, it is true, found together; but prior to Napoleon's edict after Jena, rigidly restricting the size of Prussia's military establishment, no attempt is discoverable in history to create a system in which the distinctive features of both are equally reproduced. Before, therefore, it is possible profitably to discuss the system which has so impressed itself on the military institutions of all countries at the present time, we must endeavour to submit it to a careful investigation, in order to discover what part of it belongs to the pure Militia type and which of its features are peculiar to that permanent form of service which expresses itself most fully in the few remaining professional Armies of the world.

The chief characteristics of what must be termed the hybrid system now under review are, at the present time, so well known that we propose to confine ourselves to discussing only so much of it as illustrates most profoundly our argument that, whereas a Militia form of service necessarily implies universal military service, so should the existence of a permanent establishment be synonymous with voluntary service.

There can be no question that the Prussian administrators who originated the system aimed at giving it the strength inherent in both the original types of military service, and at eliminating from it whatever elements of weakness they possess. Weight of numbers and the advantages to be derived from an organisation, scientific in its exactness, have been already referred to as the main elements of strength in a true citizen-army, and these the hybrid system retains in full. As a result we

find in it the same localisation of the forces and the same simplicity of mobilisation arrangements as distinguished the old Greek and Roman Militias. From a military standpoint, these advantages alone are so great, that a force which possesses them has an immeasurable superiority over one in which they are deficient. Could a Standing Army be kept always at a war establishment and ready equipped in every respect for the field, mobilisation is for it a name only, and such an Army is, as far as it goes, the equal of a Militia force much superior to it in numbers. But if, as was the case with the French Army in 1870, and as is our position at the present time, a force which is not strictly localised has, on the outbreak of war, to receive reservists who must be clothed and equipped, transport of all kinds to enable it to take and keep the field, riding and draught horses, and the thousand and one items of equipment which are implied in the word "mobilisation," it is futile to expect that the whole process can ever be effected as certainly and as simply, as it is in a country where every unit which exists in peace-time or is formed on mobilisation, remains always in one spot and has at its disposal practically the whole manhood of its neighbourhood, and, in case of need, such of the citizens' property as it may require. Did space permit, pages might be filled with the advantages, both moral and material, which spring from localisation; and, further, it would not be difficult to prove, were it necessary to do so, that localisation to be effective must rest on universal military service.

But, besides localisation and its attendant advantages, another benefit of the pure Militia form of service consists in the systematic training of the recruit, which is rendered possible, should it be considered necessary to give the Militiamen such a military education as will render him fit to bear his part in the defence of his country. The difficulty of obtaining a good stamp of voluntary recruit has been referred to as one of the most serious problems to be solved in the maintenance of a Standing Army, and accordingly the services of such a man must be accepted whenever and wherever he offers them. As, however, it would be obviously inadvisable to defer for long the commencement of his training, it is an inevitable consequence of a voluntary form of service that not only throughout the Army as a whole, but in each individual regiment, battery, or battalion there must always be an uncertain number of recruits in a more or less advanced state of efficiency. In dealing with State Militiamen, however, a very different condition of affairs is rendered possible. Not only can each man, individually, be allotted to such duties as he is physically and intellectually best suited for, and be sent to such place as is most convenient, but the whole batch of recruits who are required in any year to leave their homes for training purposes may be called out collectively on the same day, if need be, their military education thus beginning simultaneously, and being carried on with the regularity of a machine, while it lasts. Whether, therefore, such Militiamen are trained for three weeks or for three years, the military authorities know exactly on any particular date what their state of progress is, and whether they are actually ready to take the field or not.

There is, moreover, yet one other result of this systematic training of the recruit, which is of such vital importance that it must not be passed over in silence, and that is the so-called squadron or company system of training, on which it is hardly too much to say that all discipline and, in fact, the whole military fabric rests in the short-service Armies abroad. In an Army raised by voluntary enlistment the difficulty of giving effect to any such system is incalculable.

Space, however, forbids further reference to the many points of superiority, which universal military service confers on the Militia type as compared with a Standing Army, but, whatever they are, it must be admitted that, speaking broadly, the modern Continental system embodies them all.

We must not, however, forget to glance at the reverse of the medal, in order to see how the many serious drawbacks, inherent in all Militias, were obviated by Scharnhorst and his colleagues. These imperfections have already been shown to be of two kinds: the first being purely military in its nature, and consisting in a general want of readiness for war should a sudden emergency arise; the second being peculiar almost entirely to nations with distant possessions and arising from the unsuitability of any citizen-force to guard an extended Empire or to wage wars beyond seas. With a Continental Power which is concerned chiefly or entirely with its own defence, the second of these evils would naturally not have much weight, and accordingly it was for the essentially military shortcomings of the Militia system that the Prussian administrators had to find a remedy.

For our present purpose it will be sufficient to sum them up by repeating our former argument that any body of troops, in whom the civilian element predominates over the military, must if suddenly mobilised for war, be more or less wanting in those soldierly qualities which we expect to find in a professional force. In peace, too, there is this considerable difficulty that, should it be thought desirable, to call out for training a certain number of Militiamen, there may be a difficulty experienced in finding the requisite number of officers to look after them; or, even supposing this difficulty overcome, it is manifest that the instruction imparted by officers, whose service is in the nature of things brief and occasional only, must necessarily be of somewhat rudimentary and unsatisfactory a character.

The method adopted with a view to overcoming these difficulties was both simple and effective. A certain number of permanent instruction-cadres, consisting of officers and non-commissioned officers only, were formed for all arms of the Service, and it was ordained that as many citizens as the State should require should annually be sent to these cadres to receive just so much preparation for war as the military authorities should consider absolutely necessary in order to fit them for the defence of the Fatherland. In peace-time considerations touching the amount of instruction to be given and the number of men to be trained fixed, to a large extent, the size of these cadres. Further, a permanent military administration, comprising staff officers and other

officials, was established whose duty it should be to superintend the training given in the cadres, to take care that their *personnel* should be thoroughly fit for the duties entrusted to them, and, in fact, to be responsible generally that the whole machine should be constantly ready for war—a task which was considerably lightened by the method in all arrangements rendered possible by universal military service.

But it was not instructional purposes only that the permanent cadres and the administration were intended to serve, nor were their energies confined to mere peace preparations. It stands to reason that on a sudden outbreak of hostilities these cadres, formed as they were of highly-educated officers and non-commissioned officers, and having present with them at all times a certain number of Militiamen in a more or less advanced state of training, could, by the addition of some Militia officers and men who had lately completed their term of training, be far more readily made efficient to take the field than could those purely Militia, or Landwehr, units which would have to be raised *ab initio* on mobilisation, stores and equipment only being held for them in peace-time. The permanent cadres raised to war establishment were, therefore, under the superintendence of the staff already existing, to bear the first brunt of military operations, and thus give time, if necessary, for the general defence of the country to be effectively organised. Bearing in mind, then, the immensely important duties which the officers and non-commissioned officers of the permanent cadres would have to perform in peace and war, we are not surprised that the organisers of the Prussian Army during the years which preceded the War of Freedom aimed at obtaining the best raw material for them that the nation could furnish, and it is, accordingly, only to be expected that the voluntary principle of service in its highest form was adopted. For a poor nation like Prussia such incentives as high pay were an impossibility, and further were quite opposed to the simple traditions of the country. It was, therefore, determined to form the officers into a distinct corps which should be quite separate from the civil population, and to confer on this military caste certain honourable privileges which should make its members respected and envied by the nation at large. So successful was this plan, that for years—in fact, almost up to 1870—it was found easy to raise the officer-corps almost exclusively from the titled families of the country. Similarly an excellent stamp of non-commissioned officer was tempted to serve for a certain number of years by the ultimate hope of gaining either a pension or some position in a Government department, the State, in fact, guaranteeing his future on leaving the military service.

Such in its broad outline is the system which, in the nineteenth century, has made Prussia what she is, and, after crushing all opposition, has been adopted by every country which depends on its Army for its safety. From this brief survey of it, it will be seen that though the two forms of service, the Militia and the permanent, are so closely interwoven in it as to be hardly distinguishable, yet that they are in reality separated by a clear line of demarcation, and that either rests on its natural basis:

the former on the elementary law of universal military service, the latter on the broad principle of freedom of contract.

It remains now only to relate as briefly as possible the past history of this system, in order to ascertain what, in all likelihood, will, from the military point of view, be its future. In the first chapter we reviewed very briefly the great constitutional struggle which rent Prussia in the early sixties, and we endeavoured to show that, to a large extent, that struggle was the direct outcome of the military failure in 1850, which humiliation again was mainly due to the Landwehr or Militia élément having been allowed to acquire too great a preponderance, as compared with the permanent element, in the military organisation. Why this should have been the case is not perhaps immediately apparent, and the point needs some explanation. The superiority, at the commencement of hostilities, of the instruction cadres when mobilised over the purely Landwehr units, formed for the occasion only, has already been touched on, and it has been explained that the former were to act as a first line, so to say, leaving to the latter less arduous duties at first, and thus allowing them time to attain to a certain degree of efficiency before meeting the enemy. With the introduction of railways and telegraphs, however, and the improvement of supply arrangements owing to mechanical inventions, such as the tinning of meat and vegetables and the pressing of forage, the rapidity with which events would move was certain to be greatly increased as compared with the march of events in the Napoleonic wars, and the necessity of having an increased number of troops immediately ready for active operations became at once apparent to thinking men like Moltke and Roon; and hence arose that military demand for an increased number of permanent cadres and for a clearer understanding as to their duties, which as we have seen was resisted by the Parliamentary Opposition both on economical and on constitutional grounds. Nor during the past twenty-five years have the considerations which formerly dictated an increase in the permanent cadres of the Prussian Army become at all less pressing and, accordingly, the suicidal competition between nations in the race for military supremacy which has led to a vast, and an ever-increasing number of Militiamen being annually trained in all the important Continental countries has inevitably resulted in a proportionate increase in the number of the permanent cadres maintained.¹ But seeing that the voluntary

¹ The peace establishment of the officers and non-commissioned officers in the permanent cadres of the German Army was, for 1894-95, as follows :—

Officers of all ranks, including medical officers, &c.	26,283
Non-commissioned officers, &c.	79,036

Total permanent cadres	105,319
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Of this number there had been added by the Army Bill of 1893, which reduced the period of service for Militiamen from three to two years :—

Officers of all ranks	2,000
Non-commissioned officers, &c.	11,000

Total increase in one year	13,000
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General Brialmont on p. 131 of his work "L'Accroissement successif des

principle necessarily governs the recruiting of the officers and non-commissioned officers who compose these cadres, and that the classes from which they should come are limited in extent, it follows that one of two alternatives must be faced: either the attractions held out to induce the increased number of men to undertake the arduous duties which the service implies must be augmented, or the quality of the men obtained cannot fail to deteriorate.¹ The first alternative, however, is well-nigh impossible for countries on which the burden of taxation for military purposes already presses heavily; and the second must, therefore, perforce be accepted. But it is also inevitable that the work thrown on the instruction-cadres will increase rather than decrease, as time goes on, for so great is the burden on individuals of a Militia service, in which the period of service is reckoned by years, that the modern democracies, even with a full knowledge of the risk they are running, are constantly demanding a reduction in this period, it being hoped that an increase in the number of men passed through the ranks will compensate to some extent for the decrease in efficiency. Any such reduction, however—and it is quite certain that in future the period of service will be even further reduced—can only make the task of the instructor yet more heart-breaking than it is at present, and thus we are confronted once again with a certain cause of difficulty in filling the vacancies in the permanent cadres, and hence an eventual loss of quality is inevitable.

But what, it must be asked, can be the consequence of such deterioration in the commissioned and non-commissioned ranks?

The vital importance of the duties entrusted to these men in peace and war has been already insisted on, and any lowering of the social, intellectual, or physical standard which is observed in selecting them can therefore but lead *pro tanto* to a loss of military efficiency generally. There is not an officer on the Continent who will not state emphatically that the efficiency of any of the great modern Armies depends far more on the quality of the permanent elements in them than on the Militiamen who swell their numbers. So strongly, indeed, are the difficulties which

Armées permanentes" states that at the beginning of 1876 the number of non-commissioned officers in the German Army was 7,931 below the fixed establishment. It is hard to say what deficit exists at present.

Nearly 450,000 Militiamen are always present with the colours *in addition* to the above.

For the sake of comparison, it may not be uninteresting to add that the average strength of the Army in the United Kingdom in 1895 was as follows:—

Officers ...	...	...	...	...	...	...	3,930
Other ranks ...	...	...	...	...	...	...	103,706
Total ...	...	...	...	...	...	...	107,636

¹ It is a significant fact that of late years the German Government has been obliged to introduce a system of bounties to induce men to stay with the colours as N.C.O.'s. A man re-engaging to complete at least four years' service receives a bounty of £5. Should he remain to complete twelve years' service, he not only receives a guarantee of civil employment, but a bonus of £50 as well.

the training of such vast numbers presents realised by foreign officers, that something very like despair seizes them when contemplating the future.

"The day will come," writes Baron von der Goltz, "when the present aspect of war will disappear, when forms, customs, and opinions will again be altered. If we look forward into the future, we seem to feel a time coming when the armed millions of the present will have played out their part. A new Alexander will arise, and, with a small host of well-trained and skilled warriors drive impotent masses before him when these latter, in their endeavour to increase in numbers, outstep the right bounds and lose their internal efficiency, and, like the green-standard Army of the Chinese, become transformed into a numerous, but peaceable, host of Philistines."¹ That the great semi-permanent, semi-militia forces of the present time will gradually cast off much of their permanent element and approximate more and more to the pure Militia type, we fully believe will be the case; but, bearing in mind the examples of the ancient Republics of Greece and of Rome and of the Swiss Confederation of to-day, we also venture to assert that, even when that change has come to pass, a complete deterioration of national character must, in a European nation, precede such military demoralisation as the talented author of the "Nation in Arms" has depicted.

"Walled towns, stored arsenals and armouries, goodly races of horse, chariots of war, elephants, ordnance, artillery, and the like—all this is but a sheep in a lion's skin, except the breed and disposition of the people be stout and warlike. . . . Therefore let any prince or State think soberly of his forces except his *Militia* of natives be of good and valiant soldiers. And let princes, on the other side, that have subjects of martial disposition, know their own strength, unless they be otherwise wanting unto themselves."²

With which profound thought in our minds we now turn to consider the effect of military institutions generally on the life and character of nations.

CHAPTER III.

"The grand, leading principle of government is the absolute and essential importance of human development in its richest diversity."
—*Wilhelm von Humbolt.*

There is probably no one, be he autocrat or republican, free-trader or protectionist, socialist or individualist, who would venture to deny that the ultimate aim of any system of government is the well-being of the community for which it exists and eventually of all mankind; and were monarchs and statesmen equally agreed as to the means to be employed in attaining the desired end, doubtless the form of administration most suited to attain the object in view would be as easy to define as the object itself. But it is when we come to consider the Protean shapes

¹ "Nation in Arms," by General von der Goltz, Preface, p. 11. Translation by Ashworth, 1887.

² Lord Bacon's essay "Of the true greatness of kingdoms and estates."

with which the ingenuity of man has clothed all human authority that we may well be tempted to abandon as insoluble the riddle which the business of State presents.

"Individuality," says one writer, "is the same thing with development, and it is only the cultivation of individuality which produces or can produce well-developed human beings."¹

"At no stage of history," says another, "was it more important to call to mind the great principle that government is a means, not an end, and is constituted to maintain those general liberties which are essential for human happiness and progress."

" Frame societies as you will, it is by personal characteristics and individual qualities that its affairs in the end must be decided." ²

"L'État, c'est moi," urged the French monarch, and proceeded forthwith to formulate his idea of development in the words, "S'agrandir est la plus digne et la plus agréable occupation d'un souverain."

From the Persian despot proclaiming to all peoples, nations, and languages their future form of worship, to the socialist orator claiming for the labour of his fellows, every sort of State limitation may seem a somewhat far cry; but the difference between them is in truth one of degree only, not of kind, for in either case all hope of human liberty is lost and State-tyranny reigns supreme.

But call a government what we will, whether monarchy or republic, oligarchy or democracy, its ultimate tendency must be in one of two directions: either the State exists for the good of the individual, that is to say, the individual man or woman is recognised as the essential unit of society; or, on the other hand, the individual is regarded but as an infinitesimal part of a gigantic machine which rolls forward relentlessly absorbing, as it goes, his very life and being into itself. And what, after all, is the fundamental idea which underlies either of these conceptions of government? Is it not this that, on the one side, recognition is freely accorded to the broad principle that the willing obedience rendered by its members to the laws which Nature herself imposes is, and must remain, the surest foundation of every human society; while, on the other, it is held that a State but fulfils its duty in enforcing obedience to its man-made ordinances?

Accept the former principle as the basis of government, and the widest liberty of the human mind and the fullest development of the human faculties are the inevitable result; but once place fetters on man's will and energy, and there follow deterioration, both moral and intellectual, and such loss of self-reliance that at last the State comes to be regarded as a fetish beyond which is no appeal, and on which depend all human hopes and happiness.

"The greatest bulwark of freedom," says the present American Ambassador to this country, in the lecture from which we have already

¹ "Of Individuality," by J. S. Mill, p. 37.

² Extract from Lecture on Individual Freedom, by Hon. T. F. Bayard, at Edinburgh, on November 7th, 1895.

quoted, "is the doctrine of limitation of human authority"; and we propose now to attempt, in the brief space at our disposal, to enquire how this great doctrine is upheld or threatened by either of those types of a military force which we have already examined in the previous chapter.

Let us, then, first of all pass in review the Militia type as being the older of the two, and in fact, co-eval, with the very existence of State-life, and examine to what extent the political institutions of various nations have been affected by it for good or for evil. In discussing the military aspect of Militias, we have already expressed the opinion that such a form of service, to be really effective, depends largely on the public spirit and love of country which animates the whole body politic. It is true that universal military service is, or should be, an essential element in the formation of all Militias, whenever and wherever a serious danger threatens a country, for thus only can the numbers and the perfection of organisation which make this type of force so formidable as a means of defence be ensured. But universal military service differs in quality just as widely as does voluntary service. To brand as a conscript the citizen who regards the bearing of arms for the defence of his country as the first of his privileges, is as great an anomaly as to call a man a volunteer who enlists merely because he is starving.

"*Salus populi, suprema lex*," applies as a maxim, the force of which cannot be gainsaid, just as much in a free country as in a land whose inhabitants groan beneath the weight of an intolerable despotism, and in both countries it may happen that a Militia form of service is adopted as a public safeguard. The difference, however, between two such forces, when tested by the fiery ordeal of war, is, and always will be, the difference between the Army which faced Hannibal in Italy and that which opposed Alexander's victorious march into Asia. It is, indeed, hardly too much to assert that, unless a State is free in the highest and truest sense of the word, it may well abandon all hope of deriving profit from a Militia form of service.

But assuming that an established form of government makes for freedom, there is then no surer guarantee that the liberty of the subject will be maintained and enlarged than the existence of a citizen-army.

At Rome, when the pretensions of the Patricians became excessive, or the liberties of the people were threatened past endurance, the hardy burghers quietly formed their ranks, and, in military array, marched to the Sacred Mountain, there patiently to wait until events assumed the aspect they desired. It was to an army of his fellow-citizens that Virginius appealed for justice after working the deed of blood by which he saved his daughter from dishonour.

But in the history of no country perhaps has the intimate connection of Militia service with the spread of national independence been more made manifest than in our own. For reasons which Mr. Freeman has fully explained in his great work on the Norman Conquest, the feudal lords of England never, like their compeers in France, degenerated into a mere military caste, who dissociated themselves from, and eventually

helped to crush, the liberties of the people under them.¹ It was, therefore, the Militia officers of England, not a mere throng of magnates, who at Runymede wrung from an unwilling King the great charter of the people's liberty. And never was the spirit of the true Militiaman better exemplified than when the yeomen of England, under their natural leaders, met and defeated again and again great hosts of serfs and mercenaries led by the chivalry of France.

At a later period, too, when during the seventeenth century the constitutional struggle for freedom was in this country perhaps severer than at any other time, it was to the Militia that the people turned as their natural defence against the standing forces on which the Stuart dynasty relied in its endeavour to win for the Crown uncontrolled authority. This is a subject, however, which Mr. Clode has already dealt with so fully, that we propose now to quote only the words in which he summarises his whole argument. In treating of the reign of Charles the Second, he writes as follows:—

"It will be seen that the Parliament reposed its confidence in the Militia, when it declared its mistrust of the Standing Army The Army became as dependent upon the Crown as the Crown was upon the Army, and the Militia became a counterpoise to the Standing Army and a national security."²

And there is a contemporary evidence to the same effect of so striking a nature that we cannot forbear to quote it. "The late Government," writes the author of the "State Tracts" of the month of October, 1697, "are witnesses to the truth of this, who debauched the Militia more than ever I hope to see again, and yet durst never rely on them to assist their arbitrary designs; as we may remember in the Duke of Monmouth's invasion, their officers durst not bring them near his Army for fear of a revolt."³

Nor is it in winning, or protecting, when won, a people's freedom that the Militia form of service is of so great importance, for in all liberal forms of government there exists always the danger lest, at last, liberty may degenerate into license, and chaos replace order; and to fully appreciate what the value of a true Militia service is, even if regarded but as the means of preserving a State from so great a catastrophe, it is only necessary to compare the state of Athens as she was at the time of her greatest glory, when her citizens still acknowledged the debt of personal service which they owed their country, with her abject condition a few years later.

In such a connection there is, in truth, no need to crave pardon for quoting at some length the words of the historian who, more than any other, has represented to us a vivid picture of the life of ancient Greece.

The Athenian citizen of the time of Pericles, that is to say, about the middle of the fifth century before the Christian era, is thus described by Mr. Grote:—

¹ "Norman Conquest of England," by Mr. Freeman, Chap. XXIII.

² "Armed Forces of the Crown," by Mr. Clode, Vol. I., p. 36.

³ *Ibid.*, Vol. II., p. 61.

"Embracing with passion the idea of imperial Athens, he knew that she could be only upheld by the energetic efforts of her individual citizens, and that the talk in her public assemblies, though useful as a preliminary to action, was mischievous if allowed as a substitute for action."

But contrast with this passage the description by the same author of the Demosthenic Athenian some seventy or eighty years later.

"Pugnacity, Panhellenic championship, and the love of enterprise had died within him. He was a quiet, home-keeping, refined citizen, attached to the democratic constitution, and executing with cheerful pride his ordinary city duties under it; but immersed in industrial or professional pursuits, in domestic comforts, in the impressive manifestations of the public religion, in the atmosphere of discussion and thought, intellectual as well as political. . . . Precautionary exigencies against distant perils, however real, could not be brought home to his feelings; even to pay others for serving in his place, was a duty which he could scarcely be induced to perform. . . ."

"This decline of the citizen Militia, and the growing aversion to personal service, or military exercises, together with the contemporaneous increase of the professional soldiery unmoved by civic obligations, is one of the capital facts of the Demosthenic age. Though not peculiar to Athens, it strikes us more forcibly at Athens, where the spirit of self-imposed individual effort had once been so highly wrought, but where also the charm and stimulus of peaceful existence was most diversified and the activity of industrial pursuit most continuous. It was a fatal severance of the active force of society from political freedom and intelligence; breaking up that many-sided combination of cultivated thought with vigorous deed, which formed the Hellenic ideal, and throwing the defence of Greece upon armed men looking up only to their general or their paymaster."¹

Is it not sufficient evidence of the invigorating tendency of universal military service on national life and character that two such leaders of thought as Demosthenes and Machiavelli should have advocated its revival as the only sure means of regeneration for their fallen countrymen? Doubtless, too much stress must not be attached to the praises of this same principle to which a French President feels bound to give expression when addressing the troops of the Republic; but it is significant that year after year the late President Carnot never failed to dilate on the inestimable value derived from military discipline in the remaking of France; while this year, at the close of the great annual manoeuvres, M. Faure has also expressed himself in the strongest terms to the same effect.

But it is not to the type of military service now in vogue in many countries of the Continent of Europe that we have been referring as a bulwark of constitutional liberty, or as the best method of recalling a nation to a sense of its national duties, for we are far from regarding

¹ Grote's "History of Greece," Chap. LXXXVII., Vol. VIII.

such Armies as favourable specimens of the Militia form of service either from the military or the political standpoint.

There is, however, one matter of great importance common to all systems based on universal military service which must not be passed over in silence.¹ For years past the advocates of compulsory service have been wont strenuously to assert that the physical gain to the individual citizen, derived from a military training during two or three years, is so great, as to compensate him very largely for whatever losses and discomforts he may be put to thereby; and, further, it is argued that eventually the nation, as a whole, will, owing to its improved physique, be far better fitted to hold its own in the rough struggle for existence. That military training does greatly enhance a man's physical powers cannot be denied; and no one, who has ever watched a batch of sickly, under-sized recruits, drawn perhaps from the factories of one of our large towns, develop under the influence of good food and regular exercise, with almost magical rapidity, into healthy, well-proportioned members of society, will be tempted to underestimate the physical benefits which a country must derive from a liberal use of the drill ground and of barrack fare. But there is one fact of which supporters of the health argument in favour of compulsory service are somewhat apt to lose sight. Though during the past few years the number of men who, in France and in Germany, are annually passed through the ranks has been enormously increased, it is still but a fraction of the manhood of the nation which receives a prolonged military training. Thus in Germany, in 1893-94, the number borne on the alphabetical list as being liable for service was no less than 1,532,794, of whom not more than one-third would be likely to be enrolled in the peace cadres of either the Army or the Navy, the remainder being allotted to the Landwehr or to the Ersatz Reserve, and thus receiving little or no training, or being for some reason unaccounted for or exempted from service altogether.²

Now it is not unreasonable to suppose that the one-third taken for active service represented to some extent the physical *élite* of the nation, the weaklings and the ill-developed members of society being naturally among those rejected. In other words it is just the individuals who would most benefit by a regular course of drill and gymnastics, who, under the existing Continental system, escape military service. The case is, however, otherwise where a pure Militia system obtains, as the entire youth of the country then receives as part of its primary education whatever amount of physical training the State considers desirable; such training having for its object the eventual fitness of the manhood of the nation to bear arms, if need be, in the defence of their homes.

¹ In this place it may be worth while referring to a matter which Major Jähns brings out in his work on "Armies and the Life of Nations," pp. 400-401. We will give his own words:—"Equal rights, equal duties! But, then, only he who can fulfil all political duties can claim all political rights. In a State where universal military service obtains, the apostles of the absolute emancipation of women will find few attentive hearers."

² JOURNAL of the Royal United Service Institution, August 1896, p. 958.

Moreover, the same superiority of the old Greek and Roman practice over the latter-day custom is equally noticeable when we come to consider whatever moral advantages are claimed for universal military service. If it be a fact, as is often urged, that universal military service makes for peace rather than for war, that it strengthens patriotic feeling and inspires a population "with the kind and intensity of enthusiasm" that is most conducive to the greatness of nations"; that "it carries" the idea and sentiment of nationhood to multitudes whose thoughts "would otherwise have never travelled beyond the narrow circle of daily" "wants or of village interests"; that it introduces a touch of romance into the otherwise dull and prosaic life of the modern artisan¹; that "it" "produces habits of order, cleanliness, punctuality, obedience, and "respect for authority," and strengthens for the common good the bonds of national discipline—if these and other benefits accrue from a recognition of the plain duty which is incumbent on all citizens alike to attain to some degree of military fitness—we venture to assert that such advantages are far more likely to be realised in a country which includes in its system of elementary education some standard of military efficiency rather than in one which attempts to unite in one system two such opposing elements as a Militia and a permanent form of service.² We also go even further, and confidently maintain that by the former method those great moral qualities which the active principle of universal military service produced and kept alive in the Greek and the Roman citizen may be attained, without at the same time those grave dangers being incurred with which a Standing Army, that is to say, the true symbol in our opinion of a voluntary form of service necessarily threatens a commonwealth.

What these dangers are it is almost superfluous to point out, so obvious are they to any student of history or to any observer of current events.

From the military point of view, a permanent force, in which the professional element necessarily predominates over the purely civilian element, has been already described as being in almost every respect the very antithesis of such a Militia, as throughout these pages we have assumed to be the true exponent of universal military service, and the same difference between the two forms of service is just as marked if we regard them from the national or the political standpoint.

Just as true liberty of mind and of body is won and safe-guarded by a free burgher-force, so it is a Standing Army in whatever shape it may exist and however raised, which has ever proved a source of danger to civil freedom.

¹ Striking evidence on this point is afforded in a book published recently by a German student of theology, who, to gain experience before taking Orders, worked for some months as a mechanic in a large industrial business. The constant topic of conversation, he says, among his fellow workmen was the period of service with the colours. To them this experience had been the one bit of colour in an otherwise uneventful career.

² Some of these arguments have been derived from Mr. Lecky's "Democracy and Liberty," Vol. I., p. 256.

To explain why this should be the case it is necessary, in the first place, to seek the motives which are most likely to inspire the political actions of any body of professional soldiers; this being, however, a matter on which we shall have difficulty in arriving at a conclusion unless, at the same time we attempt to ascertain what the position of such a body is in the State of which it forms a part. Speaking broadly, the soldier's place in any realm must lie somewhere between two extremes.

Either before all else he is a citizen, and, therefore, shares the feelings and the hopes which stir his fellow-countrymen; or, on the other hand, he is given a place apart in the body-politic and taught to regard himself as separated from his compatriots by his profession and his uniform, by habits and laws peculiar to his class, by a code of honour which glorifies the sword to the detriment of the gown, and, perchance, by the privileges which the accident of his birth confers on him. In the one case, he remains ever the servant of the State and the stoutest guardian of its freedom; in the other, the time must surely come when a distinct military caste will arise which, by reason of its very strength, cannot fail to acquire the practical direction of events, no matter what the nominal form of government may be.

There is, in truth, no country and no age which has not learnt this lesson to its cost.

At Rome, it was the soldier Marius, who, by completing the work begun by Scipio and by giving to the Army the character of a paid profession pure and simple, laid the foundations of imperial despotism. From that moment the tradition that the soldier was a citizen before all else, was lost, and military pride and military principles alone dictated the soldier's code of honour. As Quirites or civilians, not as *Commilitones* or comrades-in-arms, Cæsar addressed his troops when he would express to them his deepest discontent. When, therefore, such a gulf was established between the civil and the military functions of the State that absolutism of some kind alone could bridge it over, it mattered little whether it was a Pompey, a Cæsar, or an Augustus who should raise the necessary structure on the ruins of Roman freedom. When seeking examples of military license, it is as superfluous to refer to the era of Prætorian misrule in Western Europe as to the tyranny which later Janissary and Mameluke alike exercised in Eastern lands.

But at no period of the world's history, perhaps, was the simultaneous growth of despotism and militarism more strikingly exemplified than when, in the countries where feudalism had most deeply struck its roots, the authority of the sovereign at length emerged triumphant from the internecine strife which crushed the nobles' power. To the reign of Louis XIV. we have already referred as being the period, in more recent times, when the ascendancy of Standing Armies and the total decay of the Militia idea were most marked, and it may also with reason be described as the epoch when a monarch's tyranny and a people's misery were supreme.

In England, too, during the seventeenth century the curse of an Army which was the master, not the servant, of the State, was so keenly realised

that the lesson then learnt is one never likely to be forgotten or unheeded; for, as Sir William Morrice truly wrote, "So long as the soldiery continued "there would be a perpetual trembling in the nation, for they are inconsistent with the happiness of any kingdom."¹

But it is not from the past alone that instances may be gathered of the repressive influence which Standing Armies can and often do exert on political development, for a generation which has witnessed the practical extinction of liberalism in Imperial Germany, and the menace which a Boulanger could prove to Republican France, is hardly one to call in question the sword's supremacy.

By some, however, the objection may be raised that the Militia element in the vast armaments of Europe is now so strong that they are, on the whole, rather calculated to vindicate than to do violence to the freedom of a constitution; and it is indeed not infrequently urged that the mere fact of so large a portion of a nation possessing some military knowledge makes it impossible for those in high places to trample on the people's rights with impunity. But specious though such an argument may at first sight appear, it is unfortunately one which will not bear any close examination; for as we have already attempted to make clear in our previous analysis of the existing hybrid system, the chief object of those who have had to administer it in recent years has, for military if not for political reasons, been to appreciate as far as possible the professional element in it at the expense of the Militia ideal. In other words, during the period that the citizen remains with the colours it is the chief aim of the officers and non-commissioned officers who form the permanent staffs of the instruction-cadres to mould not only his body, but his mind as well, to the stereotyped military pattern. And can it be wondered at that in this they are successful when the conditions are borne in mind, which bring the striplings of twenty or one-and-twenty under their absolute control? As long as the period of colour-service continues it is, therefore, hardly too much to affirm that the young soldiers under training inevitably lose for the time being their individuality as citizens, and become mere instruments in the hands of their military superiors.

Accordingly we claim that we are justified in asserting that it is to the permanent and voluntarily-enlisted portion of the great modern Armies that we must turn, in order to discover how State institutions are likely to be affected by these vast military organisations; and further, when considering them merely as political engines for the possible furtherance of ambitious designs of any kind, we must not lose sight of the fact that the entire machinery on which their very existence depends is under the absolute control of the military hierarchy.

But we have already seen that it is only when a permanent force degenerates into a mere military caste, whose existence is altogether outside of and apart from the national life, that its influence is necessarily baneful and oppressive. Assuming, however, that this danger of particularism is avoided, and that military institutions are so hedged round with constitutional safeguards that loss of popular control over them is rendered

¹ Clode's "Armed Forces of the Crown," Vol. I., p. 53.

almost impossible, there is then no reason why the permanent forces which a country maintains should be at all more prejudicial to its freedom than is a State Militia.

To summarise the difference, as far as State institutions are concerned, between the two types of service, which respectively involve the principle of universal military service and that of voluntary enlistment, it consists broadly in this: that whereas in the one case the civilian element must, in a civilised and commercial State, retain the upper hand; in the other there exists always the danger lest the growth of a purely military caste and its ambitious pretensions may make a natural development impossible. If the one instance of Sparta be urged as subversive of this theory, we affirm in answer that it was only by the grossest abuse of the principle of universal military service that that State became the curse she was to her subjects and her neighbours. As a robber-clan, the Dorian invaders of the Peloponnese first won a footing in Greece, and beyond this primitive stage of existence the Spartan race never advanced during the centuries that it enslaved and trampled under foot all who came within its reach.

Nor is it State institutions alone which are variously influenced by these two original types of military service, for the difference is as marked when the effect produced by either on individual life and character is observed. In a military sense we have already shown that voluntary service, to be effective, necessarily implies that a more or less prolonged period in a man's life must be spent in the profession of arms, while some form of individual training is, or should be, generally characteristic of the Militia ideal. In the former case it is part of a man's compact with his employer that he shall, perhaps during the best years of his manhood, surrender all hopes and aspirations other than those which a soldier's life can offer him, and that from henceforth the military exigencies of the State shall alone direct his fate; while to the Militiaman military ambition has no prizes to offer, for in peace or in war his service is but a patriotic duty fulfilled, and, whether it is on the drill-ground and the manœuvre terrain or amidst the bloodshed and the violence of the battle-field that he discharges the duties incumbent on him, his trade or his profession, his home and his ancestral acres, still retain the first hold on his affections.

The existence of the one is, in a sense wholly determined by the bonds of discipline, by the regular routine of barrack life, and by a superior's will—factors which can have but a passing influence on the life of the citizen-soldier.

And what, it must be enquired, is the tendency of military life and discipline in shaping human character? Mr. Lecky, in dealing with the modern military problem, has furnished so reasonable and convincing an answer to this question that, even at the risk of seeming to lack originality, we cannot refrain from employing his very words:—

"Discipline," he writes, "teaches much, but it also represses much, and the dead-level and passive obedience of the military system are not the best school of independent thought and individual energy. To the finer and more delicate flowers of human culture it is peculiarly prejudicial. Strongly-marked individual types, highly-strung, sensitive,

"nervous organisations are the soils from which much that is most beautiful in our civilisation has sprung. Beyond all other things enforced military service tends to sterilise them. Among such men it is difficult to overestimate either the waste and the ruin of high talent or the amount of acute and useless suffering that it produces."¹

Glorify the military virtues as he may, there is probably no one who will venture to dispute the proposition that, for the men in the ranks at least, barrack life and military discipline must of necessity have a somewhat levelling and repressive tendency. Where, however, the members of a Standing Army only are concerned (for from its very nature such a force is, or rather should be, strictly limited in size), any serious deterioration in character which may result from a loss of personal liberty can hardly be designated a great national calamity; and more especially is this the case where the voluntary principle of enlistment is adhered to, seeing that then it is only those natures most fitted for the rough soldier's life who are likely to choose it.

But from the moment that barrack-room life and a prolonged period of existence passed under purely military control are artificially grafted into the Militia type of service, the magnitude of the change in the whole aspect of affairs is one which can hardly be expressed in words; for then those influences which Mr. Lecky has so eloquently described are brought to bear, not alone on those individuals who by nature are most fitted to sustain their effect, but also on the great mass of the nation without respect to class or temperament. The military cadre becomes in such a case a very bed of Procrustes, whereon a nation's being is stretched and mutilated.

It would, in truth, almost appear as though in the great scheme of man's development, the little State of Sparta was allowed to exist for a while with no other object served than to point the moral of the fate which awaits a nation that makes the sword its god and knows no other defence than its shield. A slave to the blackest superstition, so steeped in selfishness that, in the hour of Greece's sorest need he preferred to see his hated rival perish rather than strike a blow for the common safety, and later was even ready to barter Hellenic freedom in exchange for the Persian's support of his own ambitious designs; uncouth and mercenary, tyrannical and despiser of all that the free citizen prizes most highly, the Spartan stands before us the supreme product of militarism glorified. Of the State of Sparta it may without exaggeration be asserted that, with the exception of Lycurgus its founder, it never produced a great man, unless the passing fame which mere animal bravery may win can be counted to it for greatness.

And for the cause of the remarkable difference noticeable between a nation of soldiers, such as the Athenians were in the days of Miltiades, and a military caste like the Spartans, is it necessary to seek further than to ascertain the part which barrack life played in the one State or the other. At Athens the barrack was unknown; for the Spartan it was, till he was thirty at least, his home. In order to estimate, there-

¹ "Democracy and Liberty," Vol. I., p. 260.

fore, the amount of harm which compulsory military service may produce on individual character, it appears to us necessary to enquire only the length of the period that the Militiaman is condemned to spend in barracks. Every day added to that period increases, every day taken off diminishes, the danger which a nation runs of incurring the fate of Sparta.

Into the miscellaneous advantages and disadvantages urged in favour of or against the existing Continental system, of which a compulsory and protracted residence in barracks forms so marked a feature, it is not our purpose to enquire at all fully; for, in a limited space, it would be impossible to do justice to so comprehensive a theme. Further, the system is an artificial and unnatural one, and its existence can be defended only on the grounds that the external pressure which weighs on the country employing it is so great as to admit of no less terrible an alternative.

Seeing, however, that it does exist, and that its effects on national life and character in all the great countries of Continental Europe are so prominent, it would savour of pedantry to ignore it altogether; and we propose, therefore, to examine it briefly in its financial, commercial, and social aspects.

As some assistance in the prosecution of this investigation, a table has been attached in the Appendices, which shows at a glance, as far as statistics can show anything, what progress or the reverse has been made in various directions during the past twenty or twenty-five years in Germany and France—countries in which universal military service, combined with a prolonged period of training, is prevalent; and, for the sake of comparison, figures bearing on the prosperity of the United Kingdom during the same interval have been added.

The financial burdens, which the idea of a nation of highly-trained soldiers carries with it, will be best appreciated by a reference to the items in this table, which represent the national indebtedness of the two foreign countries selected, and their direct military expenditure.¹ But it must be borne in mind that the amount of money shown in Estimates as being spent in any one year by France or by Germany on their Armies does not by any means represent the total cost of defence. Not only must the interest on previous loans raised for military purposes be added, but sight must not be lost of the fact that a considerable number of one-year volunteers in both countries bear the whole cost of their year of service.² Moreover, the billeting of troops on the inhabitants during the period of the manœuvres constitutes a heavy indirect tax.

¹ Any sort of comparison between Armies raised by voluntary and compulsory methods has been intentionally avoided, as it appears to us useless to attempt to compare forces which are, or should be, intended for entirely dissimilar purposes. Should any reader wish to enquire further into the question of the cost of conscription to a country, and the comparative expenditure on Armies, he will find the matter fully dealt with in an able article by Captain J. C. Ardagh, R.E., in the R.U.S.I. JOURNAL of 1876, p. 218.

² In the German Army there are, probably, not less than 10,000 one-year volunteers annually enlisted. The cost to each of them of his year's service varies from £80 in the infantry to about £130 in the cavalry.

But, however great a drain an enormous Standing Army must inevitably prove to the finances of a State, the deleterious effects, which it is frequently urged that the withdrawal of so large a number of men from productive labour must have on the commercial interests of a country, appear to us to be by no means clearly demonstrated by facts, while the gain from the point of view of technical education is incontestable. The employment of a Navy as a training ground for the seamen of a country cannot but have a most beneficial effect on the mercantile marine,¹ while in the Army there are a variety of trades practised—an apprenticeship in which is of immense subsequent value to a citizen in civil life.

As a commercial community, Germany may be almost said to have sprung into existence since 1870 ; and in view of what she has accomplished since then, and of her keen competition with ourselves in the markets of the world at the present time, there are even observers of current events who are asking with concern whether it is not rather because of, than in spite of, universal military service that she has attained to so large a measure of success. Is it even possible, as some advanced collectivists dream, that she is to be the pioneer in establishing a gigantic system of State co-operation which will win in peace the same triumphs that her Armies reaped in war ?

On the social evils which spring from deferred marriage and the loosening of domestic ties it is impossible to dwell at any length ; but it is perhaps not unreasonable to presume that these causes are, to a considerable extent, responsible for the increase in recent years of illegitimate births in both the countries selected as being typical of modern military methods. In such a matter, however, we readily admit that statistics may be a most untrustworthy guide.

But there is one aspect, partly social and partly financial, of the military problem to which sufficient attention is not usually devoted. The great and ever-growing difficulty experienced in obtaining a good stamp of non-commissioned officer for the permanent cadres of the foreign Armies has been already referred to, and incidentally the retention of these men in State employ at the end of some ten or twelve years' colour-service has been mentioned—an arrangement which on purely military grounds has much to commend it. But from the national point of view it is harmful in the highest degree, for more reasons than one. First, by the exclusive introduction of old soldiers into almost every State department the whole Government machine becomes literally permeated with militarism ; secondly, it is very doubtful whether a period of ten or twelve years spent in drilling recruits is altogether the best possible training for practically the entire police, postal, or railway administration of the country ; and, thirdly, in order to provide employment for the large number of non-commissioned officers who annually become entitled to some appointment under the Government, the State is forced to enlarge

¹ A perusal of the recently-published report of the committee appointed by the Board of Trade to enquire into the manning of British merchant-ships will show how serious are the difficulties of obtaining thoroughly trained British crews at the present time.

the sphere of its activities to a most dangerous extent, and it is this latter point which brings us now to the consideration of by far the most important result of the modern Continental system.

The rapid growth of the so-called scientific socialism on the Continent, and in Germany especially, during the past twenty years, is without exception the most important and striking development in the history of our own times. In England public opinion is perhaps rather too apt to regard the movement merely as an ebullition of deep-seated discontent, and as a proof of a desire in the democracy to overturn all existing forms of government; and, doubtless, many of the tenets of militant anarchism have become embodied in the modern socialist's creed. But the socialism of Marx and Hegel must certainly not be confounded with anarchism, and there are many reasons which lead us to the conclusion that socialism pure and simple is the direct outcome of militarism. The military system now prevalent on the Continent is, in our opinion, the very ground-work and corner-stone of the socialistic edifice.

Is it possible that a man should live two or three years absolutely under State control, taking no thought for the morrow what he shall eat or wear, and remarking only, as he cannot fail to do, the marvellous precision with which what is perhaps the most wonderful piece of State machinery which the world has ever seen does its work, without at last being overpowered with the sense of his own insignificance and impotence, and in despair invoking the State to relieve him of the last shreds of individual liberty it had left him? Add to this consideration the fact that, in Prussia, militarism gave the death-blow to liberalism, and so destroyed, once and for all, the nation's fair hopes of constitutional progress and reform, and that, since then the State has from year to year magnified its conceptions of its proper functions, and wonder at last ceases that the electors of Germany should now look for salvation only to a State reformed through the State.

Truly in our own day there is cause for the same wonder which the wise Elizabethan philosopher expressed:—"It is a strange desire which men have, to seek power and lose liberty."

CHAPTER IV.

"Let us turn from the generation that is going off the stage, to the generation that is coming on."—*Lord Bolingbroke.*

In the foregoing chapters we have attempted to demonstrate what are the proper uses of the voluntary and the compulsory forms of service respectively, and also to explain the evils, both national and military, likely to arise from the abuse of either. The efficiency of Standing Armies and Navies we have shown to depend absolutely on the strictest adherence to the voluntary form of service, the word *voluntary* being understood in its highest and most literal sense. In other words, no Standing Army or Navy can be looked upon as wholly satisfactory which is not composed of men who are attracted into its ranks, and are not merely compelled to enlist by force of circumstances. For this reason, it should

ever be the constant care of the statesman to ensure that the duties imposed on the permanent forces of a country are limited by recruiting considerations.

These considerations must, it is obvious, depend on circumstances which vary in every case. The question is, in fact, purely one of supply and demand; the supply being dependent on the martial spirit, which animates the nation as a whole, and on the amount of money which a country is able or is willing to spend on its naval and military institutions; the demand on the other hand being determined solely by the size of the Army or the Navy, and this factor again must depend on the duties which either of these forces has to fulfil.

Here, in truth, we have the crux of the whole question. In the acquisition and for the defence of great Empires, like those of Rome and of Great Britain, Armies of professional soldiers are essential, and, fortunately, it is usually possible by forethought, to limit imperial responsibilities in accordance with the national capacity of protecting what is won. The demand, in fact, can be regulated by the condition of the supply, and not *vice versâ*. If, however, the exigencies of either imperial or of national defence are allowed to determine the strength of the paid forces, irrespective of supply of recruits—if, in plain language, more is expected of those forces than they can possibly perform—inefficiency and disaster must ensue, as Rome learned to her cost.

And it is precisely when matters have come to this pass, that the advantages of the Militia type of service become evident, for, owing to its inherent defensive strength, a Militia based on universal military service can, at least, relieve the permanent forces of the heaviest portion of their load. A great Empire, provided the race that built it up remains morally sound, can be destroyed only by a successful attack directed against its very heart. But we have already seen that the most effective safeguard against such an attack is a great State Militia, and that the amount of organisation and training which such a force should receive must be determined entirely by the extent of the threatened danger.

Where the peril of invasion is far removed, so that the all-important factor of time makes in favour of the imperilled State, or where, for any reason, the numbers which an invader could bring to bear are limited, it is then certain that such a military training as the Athenian and Roman boys received as part of their education, is amply sufficient to guarantee the safety of the commonwealth. All that is required in addition, is that each citizen soldier shall know what his duties will be, and where his arms and equipment will be issued to him, when the call-to-arms rings through the land.¹

No form of defence is so simple, none is so effective. True it is, that some perils are so pressing and so imminent that a nation must live, so to say, with its armour ever on, and with a drawn sword in its hand, and in such a case universal military service may become a curse instead of a privilege. Such untoward circumstances need not, however, deter a

¹ Appendix III. gives a brief outline of such an organisation.

people more happily situated from keeping its sword keen and its shield ready for use in case of need.

The question, then, that immediately concerns us in this country, is whether the dangers to which we are exposed are sufficient to justify the re-introduction of a pure Militia form of service. Are we perfectly convinced that the voluntary form of service on which we rely is sufficient for the defence of the Empire in every part, at home as well as abroad?

In our Volunteers we possess, it is true, one of the noblest Militias that the world has ever seen, and no one, we suppose, would be so insane as to suggest the substitution for that force of a great mass of levies to be raised only when war breaks out. But there is one question for which every British subject must find an answer. Can the defence of the United Kingdom, or of Australia, or of South Africa, be, in time of war, safely entrusted to the Volunteer forces which now exist in those countries; the paid forces of the Empire, both naval and military, being thus set free to proceed to any spot on the globe where Imperial interests may require their presence? In other words, are we convinced that we are not, as did the Romans, imposing on our Regular forces the double duty of home defence and of Imperial protection, and by so doing are expecting more of them than in the time of danger they will be able to perform?

If there is even a doubt on this subject in the public mind, the remedy is both plain and simple; for the existence of a vast defensive scheme throughout the Empire, in which all citizens alike should participate, would amply suffice for all purposes of home defence.

The obligation which lies on us and on our fellow-citizens to show by deeds, and not by words alone, our readiness to take up arms to defend our glorious heritage, must be measured not so much by the danger which may threaten the United Kingdom itself, or any other part of the Empire where the British race predominates, but rather by the sum total of the perils to which the Empire as a whole is exposed, for it is by these that the duties incumbent on our Navy and our Army in time of war must be reckoned.

Did space permit us we would fain have advocated a return to the pure Militia form of service, on the grounds of expediency alone; for of the supreme value of military discipline as a factor in the physical and moral education of a country's youth we are absolutely convinced.

In the year 1883 there was inaugurated in Glasgow by a small band of enthusiastic philanthropists an organisation called the Boys' Brigade, which aimed at bringing some civilising influences to bear on the roughest lads of our great cities. But it was soon found that it was by military discipline alone that this class could be attracted and controlled, and to the brigade, therefore, an essentially military character was given. It is due entirely to the observance of the strictest military discipline that this force has so flourished, that now, at the end of less than thirteen years, it numbers no less than 70,000 members, and has its branches throughout the British Empire.

And what are the qualities which, by means of wholesome discipline, the founders of this body aimed at instilling into their youthful recruits?

To quote the words of the Constitution of the Brigade, its main object is "the promotion of habits of obedience, reverence, discipline, self-respect, and all that tends towards true Christian manliness." We have in this country accepted to the full the principle of compulsory education, as far as the intellect is concerned, and it remains only to give to this system its natural complement in some form of compulsory physical training.¹

That such a training would be compulsory in name only, we are assured, for if the principle of "contracting out," so dear to the heart of every Englishman, were admitted, such institutions as the Boys' Brigade, based on voluntary enlistment, would multiply throughout the Empire, and to the physical and military training of our lads would be added the pursuit of the highest moral ideals.

In the noblest sense of the word, the people of the British Empire would thus become a nation-in-arms, and between the scattered members of the Anglo-Saxon race would be established a bond stronger than Zollvereins or protective duties. The knowledge which a great mass of the citizens of the Empire would possess that, in a time of emergency, they might find a place in the Imperial scheme of defence, would be the surest bond of union, and the firmest pledge of loyalty. To the Canadian and the South African, to the Australian and the New Zealander, as well as to the inhabitants of these Islands, Imperial Defence would become something more than a phrase only. To our enemies, it would be a very stern reality.

See also Appendix III.

APPENDIX I.

Table showing the physical standard required for recruits, and the number enlisted who reach that standard. Tables are extracted from Report of Inspector-General of Recruiting for 1895.

1. The standard of height and chest measurement, and the minimum age and weight of recruits, for the various arms of the Service, are as follows:—

(a). HEIGHT.

Cavalry of the Line	-	-	5 ft. 6 in. to 5 ft. 11 in.
Royal Artillery	{	Gunners	- 5 ft. 6½ in. and upwards.
	{	Drivers	- 5 ft. 4 in. to 5 ft. 6 in.
Royal Engineers	{	Sappers	- 5 ft. 6 in. and upwards.
	{	Drivers	- 5 ft. 4 in. to 5 ft. 6 in.
Foot Guards	-	-	5 ft. 9 in. and upwards.
Infantry of the Line	-	-	5 ft. 4 in. and upwards.
Army Service Corps	}	-	5 ft. 3 in. to 5 ft. 5 in.
Medical Staff Corps			
Ordnance Store Corps			

(b). MINIMUM CHEST MEASUREMENT.

Except for Drivers and Artificers of the Royal Artillery and Royal Engineers.

33 in. for men of 5 ft. 3 in. and under 5 ft. 6 in.

34 in. for men of 5 ft. 6 in. and under 5 ft. 10 in.

35 in. for men of 5 ft. 10 in. and upwards.

(c). MINIMUM AGE.

18 years.

(d). MINIMUM WEIGHT.

115 lbs.

2. The following table shows the total number of recruits enlisted (exclusive of those for the Colonial Corps), and the numbers taken under any of the standards, during the past five years:—

	1891.	1892.	1893.	1894.	1895.
Total recruits joined ..	35,298	39,596	34,759	33,345	29,059
Number under standard	11,622	12,101	7,759	8,463	5,780
Total up to standard	23,676	27,495	27,000	24,882	23,279

The above figures show pretty conclusively what the margin of safety is in our recruiting operations. The standard of physical requirements is certainly not a very high one, and yet we cannot obtain, on an average, more than 25,000 recruits who come up to it.

Table giving certain Statistics concerning England, Germany, and France, during the past twenty years.
[Extracted chiefly from Stateman's Year Book.]

* In 1869 France spent £15,359,192 on her Army.

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APPENDIX III.

1. The following is a brief summary of the proposals in Chapter IV. :—

- (a). In present political circumstances, it appears desirable that the paid Forces of the Empire, both Naval and Military, should be relieved of all anxiety on the score of Home Defence, and so remain free for the duty of Imperial Protection;
- (b). Home Defence would thus become the function of the Volunteers of the Empire;
- (c). If there is any doubt as to the Volunteers unaided being sufficient for this purpose, some organisation for forming in a time of emergency a Territorial Army based on universal military service should exist in peace-time.

2. Such an organisation as the following would, in our opinion, suffice :—

- (a). All boys to get some military training as part of their education. This training to be conducted on exactly the same lines as the present educational course, that is to say, a standard of efficiency would be laid down to which all must conform. Part of the capitation grant given by the State would depend on this efficiency.
- (b). Every citizen, on his name being entered on the register as a voter, would become liable to military service in a case of emergency. He would be informed in peace by the military authorities what his duties would be in the event of a serious mobilisation for Home Defence.

This registration would give to the military training of the boy a reality which it would otherwise lack.

3. Such a scheme would practically cost nothing, except the money spent on the arms and accoutrements held in store for the Territorial Army.

SHORTHAND IN THE ARMY.

By Captain J. E. CAUNTER, p.s.c., The Welch Regiment.

Wednesday, January 25th, 1897.

Major-General LORD METHUEN, C.B., C.M.G., Commanding the
Home District, in the Chair.

I HAVE to thank the Committee of the Royal United Service Institution for this opportunity of bringing before a military audience a subject of so much importance to the Army.

From the earliest times various systems of shorthand have been in existence. Julius Cæsar, for example, is said to have employed one; and doubtless, could we penetrate the veil that envelops the history of his age, and obtain an official account of his campaigns, we should find that his successes were in some measure due to the employment by himself and his staff of this means of communicating orders and despatches. The earlier systems were naturally of very primitive construction, and for the most part consisted merely of abbreviations. It was not until the middle of the present century that the genius of Sir Isaac Pitman recognised that the principle of "sound writing," or phonography, was the only one on which to base a system that could hope to record the utterances of rapid speakers. When we consider the marvellous quickness and dexterity attained by the fingers after a comparatively short training, it does not appear unreasonable to suppose that, given the same opportunities and practice, they would be capable of placing on paper a series of signs representing the sounds emitted by the human voice as rapidly as they could be distinctly uttered by the vocal organs.

The advantages that would accrue from the employment of shorthand in the Army have to a certain extent been recognised, but the principal object of this paper is to bring them more thoroughly to the notice of military men, particularly with reference to the acquisition and use of the art by officers. In doing so I shall endeavour to confine myself to the

practical uses to which shorthand may be put, and to avoid the error, too frequently committed by enthusiastic phonographers, of claiming more for the art than can reasonably be proved by its past history.

It is obvious that the introduction of any system which would enable a staff officer to complete the clerical portion of his duties in a quarter the time that he has at present to give to it, must be an inestimable gain to the efficiency of the Service. Much has been done through the energy of 1st Class Staff-Sergeant-Major McFarlane, Army Service Corps, and others to bring the subject to the front, and during the last few years many non-commissioned officers and men have taken advantage of the opportunities offered them by the establishment of classes in some of our larger garrison towns to qualify as shorthand clerks.

The full value of shorthand, however, cannot be obtained until officers also make themselves proficient in the system.

The following appeared in the *German Army Journal* of the 16th January, 1891:—"It seems curious to us, that at times our attention is drawn to a science which almost seems to be overlooked or forgotten; although we are convinced that the same, on account of its perfection, could well be used in the Army. Such a science, for instance, is shorthand, which has gradually penetrated our Parliamentary and business life. It can to-day be as little dispensed with as steam or electricity. It is, therefore, a surprising fact that shorthand has not long ago become the common property of the Army. First of all *every officer* should make himself fully acquainted with shorthand; afterwards the lower ranks might be taught: first the regimental clerks, later on the non-commissioned officers. Of the latter, at least two in each company ought to be perfect shorthand writers. Only after shorthand has been generally introduced will its value for military purposes show itself to its greatest extent."

Since this was written, much has been done in the German Army to encourage both officers and men to acquire a knowledge of shorthand.

In the Queen's Regulations, we find it stated that "a knowledge of shorthand is of great advantage to a staff officer," and that those who obtain a certificate of proficiency in it will have their names recorded. It is a matter of satisfaction that the utility of shorthand for Army purposes has thus received official recognition; but it should be remembered that an officer must necessarily devote a good deal of time, and some expense, in order to obtain a thorough knowledge of shorthand; and, therefore, some further inducement should be held out to them to qualify. I would, therefore, suggest that shorthand should be introduced as an extra subject at the entrance examination to the Staff College; and that opportunities should be given at the Royal Military Academy and at the Royal Military and Staff Colleges, for those who may wish to do so, to make themselves proficient in the system. What a boon it would be to the student at the Staff College to be able, if necessary, to take down his course of lectures verbatim, instead of jotting down a few disjointed sentences in cumbrous longhand!

I should like to refer, as early as possible, to a point which I consider of most vital importance to the future of shorthand in the Army.

In Army Order No. 2 of January, 1895, it is stated that "The system recommended for the Army is Pitman's." This should be amended to read, "The *only* system recognised for the Army is Pitman's." My reason for advocating this change is, that one system, and one system only, should be used for Army purposes. Shorthand will lose 90 per cent. of its value unless it is distinctly understood that all military shorthand writers must be trained in the same system, so that they may be enabled to read and transcribe each other's notes.

Lieut.-Colonel Sombart, in a contribution to the *Stenographic Courier* (Wiesbaden), writes:—"In my opinion the adoption of one system only, for the whole of the German Army and not only for those portions of it which are under the Prussian Ministry of War, is not only desirable, but *absolutely necessary*. Shorthand, though useful in itself, would become a source of danger, if it were doubtful whether the various bodies of troops co-operating in war for the same purpose could understand each other. One system for the whole German Army or better no system at all."

That there is a real danger of more than one system being studied, is shown by the fact that some months ago a circular letter was sent by the military authorities in India, to officers commanding units for the information of officers generally, setting forth the advantages of a system invented by an officer of the Medical Staff.

Now, in the opinion of those best qualified to judge, Pitman's system has no rival. It is recommended by the Society of Arts. It has been sixty years before the public, and has been put to every conceivable test. In Great Britain, Pitman's shorthand is used by 93 per cent. of the newspaper reporters, and by 98 per cent. of the shorthand clerks.


In the United States, 97 per cent. of the shorthand writers use Pitman's phonography, or an American presentation of it. The percentage in Australia is 96. It has been adapted to fifteen foreign languages.

It has received the highest awards wherever exhibited. Pitman's system of writing, called Phonography, combines the perfect phonetic representation of the English language, with a selection of signs so simple as to furnish a system of shorthand. It is based on an alphabet which, unlike our common alphabet, provides a distinct sign for each distinct sound in the language.



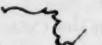
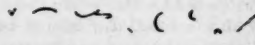
The simplest mathematical signs—the right line, the curve or the segment of a circle, the dot and the dash—furnish the material of the phonographic alphabet. Each sound is expressed by a simple and easy motion of the hand. Only sixteen out of the twenty-four consonants in the English language are essentially different. They are *p, t, ch, k: f, th, s, sh: m, n, ng: l, r: w, y: and h*. The articulations in the pairs *p* and *b*, *t* and *d*, *f* and *v*, etc., are the same; but the sound is, so to speak, light in the first and heavy in the second letter of each pair.

The letters of each pair are represented by similar strokes, but that chosen for the second (or heavy sound) is written thick instead of thin, thus *p*, *b*, *t*, *d*, *f*, *v*, etc., and thus not only is the memory not burdened with a multitude of signs, but the mind perceives that a thin stroke corresponds with a light articulation, and a thick stroke with a heavy articulation. The vowels are arranged naturally in two series, palatal and labial. Each series commences with the most open sound. The short vowels are represented by light dots and strokes, and the corresponding vowels by heavy ones.

These signs, with the addition of judicious abbreviations, the use of a dot for the prefix *com* or *con*, etc., the adding of a small hook at the commencement of a consonant for *r* or *l*, or at the termination of a consonant for *n* or *f* and *v*, or of a large hook for *shon*, etc., and the shortening of a consonant to indicate the addition of a *t* or *d*, are briefly the foundation on which Sir Isaac Pitman has built up his phonetic shorthand; and, while giving the uninitiated an idea of the principles on which phonography is based, are sufficient to show that the system thus developed meets every requirement for the most rapid writing, while its phonetic character renders it as easy to be read as to be written.

As an illustration of its briefness compared with longhand, let us take the word "communication"—a word of frequent occurrence in military correspondence—and compare it as written thus with its shorthand outline, . Here the dot represents *com*, the curve *n*, the line *k*, and the hook *shun*. As there is no other outline in phonography similar to this, no vowels need be inserted, and in rapid writing it is not even necessary to prefix the dot for *com*. As a further illustration of the brevity of the system, I have written out a letter such as might be received any day in a military office, both in longhand and in phonography. The former took just under twenty minutes to write, the latter five minutes.

This ratio of four to one is perhaps rather unfair to phonography. For instance, a very fast longhand writer cannot certainly exceed forty words a minute for any length of time, while a very fast shorthand writer would make light of 160 words a minute. Again, twenty words a minute is a very fair pace to write longhand; yet a phonographer can hardly lay claim to the name if he cannot take at least eighty words a minute.

In phonography speed is considerably increased by the judicious use of "phraseography," or the joining together of the small words in a phrase when there is no chance of the outline, so produced, being confounded with those of single words. Thus "I have the honour to be, Sir," is written  instead of , and "I am inclined to think that you are" , not .

[*Specimen Letter to War Office.*]

SUBJECT:—"Appeal against a Disallowance of Forage Allowance."

From The General Officer commanding the Troops, Western District,
To The Secretary of State for War, War Office.

HEADQUARTER OFFICE, DEVONPORT,

28th August, 1896.

SIR,—I have the honour to submit, and strongly recommend for favourable consideration, the following appeal of Captain George Carey, 2nd Devonshire Regiment, against a War Office disallowance of Forage Allowance drawn by that officer during leave of absence for his horse, which was left at my disposal.

Previous to his appointment as Adjutant, 3rd Volunteer Battalion, Devonshire Regiment, Captain Carey was performing the duties of Garrison Signalling Officer at this station. For this duty he kept a horse, and drew Forage Allowance under authority of War Office Letter No.

⁵³
Devonport, of the 20th June, 1892. On relinquishing this appointment,

⁹⁹⁹²
Captain Carey proceeded on leave of absence until the time of taking up the Adjutancy, but left his horse at my disposal for the use of his successor if necessary. His successor, Captain Jenkins, Royal Marines, used the horse in the performance of his duties for a little over three weeks, but then bought a charger of his own. Captain Carey was duly informed of this, and that the issue of Forage Allowance for his horse would cease. Captain Carey appealed strongly against the discontinuance of the issue, seeing that he was so soon to take up a post carrying with it the issue of the allowance. I then granted the continuance of the issue on the condition that if it were disallowed by the War Office Captain Carey would have to replace the amount.

I should have submitted the matter at once, but thought that Paragraph 142 Allowance Regulations covered the issue, although it did not seem quite clear.

Captain Carey now appeals for a refund of the amount, £4 12s. 6d., which will be found credited to the public in the accounts of the District Paymaster for this month.

The disallowance would bear hard upon this officer, as it would have been suicidal for him to have disposed of his horse, knowing as he did that it would have been necessary to have purchased one within a few weeks for the duties of his new appointment.

I again strongly recommend the refund.

I have the honour to be, Sir,

Your obedient servant,

GENERAL OFFICER COMMANDING THE TROOPS,
Western District.

The following shorthand letter is written in the Reporting Style, and contractions, especially in Military Phraseology, are freely used, the object being here to show the quickness with which Phonography can be written in comparison with longhand.

For stereotyped official letters this style is convenient, but in other cases it cannot be too strongly impressed on Military Phonographers that *Legibility* must be the first consideration, and that a liberal use of vowels and a corresponding absence of all but well-known contractions are advisable.

3 v - p . u n .

2 6 7 4 .

2 6 , h
28 4 , 1896

2 6 7 4 . u n . 2 6 , h
28 4 , 1896

2 6 7 4 . u n . 2 6 , h
28 4 , 1896

2 6 7 4 . u n . 2 6 , h
28 4 , 1896

2 6 7 4 . u n . 2 6 , h
28 4 , 1896

2 6 7 4 . u n . 2 6 , h
28 4 , 1896

Now, it is often said that, provided the clerks in a military office are shorthand writers, and can take down for transcription the matter dictated to them by the staff officer, it is not necessary that the latter should himself be a phonographer; and I should therefore like to point out shortly a very few of the many instances in which a knowledge of shorthand by a staff officer would enable much valuable time to be saved. Take, for example, the ordinary routine in a staff office. The staff officer having previously thoroughly threshed out the subject with heads of departments, etc., and consulted all the regulations bearing on it, brings the matter before his chief for final decision. Under the old system the chief would perhaps dictate to the staff officer his views on the matter, which the latter would take down laboriously in longhand; or he may tell the staff officer to leave the papers with him, and afterwards draft a rough copy of his decision, which must be re-written and again brought to him for his signature. But with the staff officer and his clerks proficient in phonography the chief would dictate his views, which the staff officer would take down expeditiously in shorthand, pass to the clerks, who would at once transcribe in proper letter form, and by the time other correspondence was disposed of, this and other letters in quick succession would be ready for the chief's signature.

That the advantage of conducting business on these lines is recognised in the principal Government offices in Germany is shown by the words of the Chancellor of the Exchequer Miquel, who says:—"I could not do my work as it ought to be done without the help of shorthand. Without it I should simply become a clerk and lose a great deal of time (which I need for seeing, hearing, controlling, etc.)."

"When I am disengaged for a moment my adjutant, who knows shorthand, comes into the room. I dictate to him a report in a quarter of an hour which, to write myself, would take several hours, and then I can devote myself to other business. Shorthand is quite indispensable for me."

Then again, a staff officer has frequently to deal with matters of a confidential or semi-confidential nature, which must necessarily pass through *his* hands alone—such, for example, as the preparation of defence schemes and confidential reports, etc., and in making his rough copies a knowledge of shorthand would certainly save him many hours a week.

When attending his chief at inspections, official visits, interviews, etc., he is constantly called upon to make notes of various points on which, later, reports have to be rendered, and in such cases the few notes he is at present able to take down in longhand are often totally inadequate.

The advantage of a knowledge of shorthand in such positions to officers both on the general and personal staff is indisputable. Every officer on the staff keeps, or should keep, a diary, and the smallness of phonetic characters, in combination with the speed with which they can be conveyed to paper, make them peculiarly suited to this class of work. Staff officers are frequently appointed secretaries of committees, and are responsible for a correct report of the proceedings; much time is at present lost by the inability of these officers to write shorthand.

Again, what a saving of time would result in taking down the proceedings of courts-martial, courts of inquiry, boards, etc., in shorthand !

The small space occupied by shorthand characters, in comparison with those employed in longhand, may be utilised in military sketching. The first requisite of a military sketch is clearness, and in order to secure this we are unable to place on the face of the map information which would often be most valuable for military purposes.

With the small phonetic characters this drawback can to a great extent be obviated, so that without endangering the clearness or obliterating the detail, we can show much on the sketch which would otherwise have to be embodied in a separate report. This peculiarity may also be taken advantage of in making use of the pigeon post, and the necessity of reducing the despatch first by means of photography be dispensed with. The despatch even when very long can be written in shorthand on a very small piece of paper. As an example of what has been done in this direction, I may state that no less than 21,000 words have been written in phonography on an ordinary half-penny postcard.

The importance of the acquisition of a thorough knowledge of modern languages by officers is so well recognised, that it may not be out of place in a paper dealing with phonography, to mention that the system has been used with marked success in teaching these subjects. The fact that by its aid we are able to commit sounds to paper with absolute fidelity, has been utilised to overcome the difficulties of pronunciation. Mr. William Pryor, who has done so much for shorthand in the Army, by the formation and instruction of classes for N.C.O.'s and men quartered at Plymouth and Devonport, whilst on a recent visit to some friends in France took down at their dictation several passages in French ; and some days later, although understanding little or nothing of what he had written, read back his notes with such accuracy of pronunciation that his hearers had no difficulty in following the sense of his words.

In the field the employment of phonography would be even more valuable than in the office. The importance of saving every minute on active service, and of the speedy transmission of orders and reports, can hardly be exaggerated. No doubt the field telegraph and telephone would be available in many instances, but cases will be of frequent occurrence in which this means of communication is not at hand. The advantage of sending written orders in place of verbal orders is generally acknowledged ; yet the length of time necessary to put the former on paper, frequently causes the employment of the latter. Colonel Henderson, in his lecture on "The Framing of Orders in the Field," cites as an instance, among others, of the unreliability of verbal orders the battle of Gaines Hill before Richmond, at the commencement of which General Jackson sent by his A.D.C. a *verbal* message to his reserve divisions, communicating his plan of attack. The messenger, however, misconceived the General's intentions, and instructed the reserve divisions to await further orders before engaging the enemy. The error was eventually rectified by the chief of the staff ; but for two hours the first line had been left without

the support which Jackson had intended should be furnished, and was well-nigh overwhelmed.

Later on, Colonel Henderson says:—"It is a notorious fact that in war verbal messages, as a rule, are more often incorrectly than correctly delivered. Even at peace manœuvres this is the case. In the excitement of battle it is almost impossible to avoid. While, therefore, I quite agree that verbal orders are often the only orders possible, I am, at the same time convinced that practice in giving such orders is absolutely essential, that facility in writing orders will give facility in issuing them by word of mouth, and that wherever possible it is better to reduce all orders to writing."

Now, I maintain that written orders would not only be always possible, but would be invariably employed if our staff officers possessed a knowledge of shorthand, for it would take no more time to write an order than to give a verbal one. For short distances and in open country it is probable that an order written in shorthand and despatched by an A.D.C., or orderly, would reach its destination more quickly than one sent by the field telegraph or by signal, whilst it would undoubtedly be more clear and complete. Another advantage that may be claimed for shorthand messages is this: that though they would be perfectly clear to the person for whom they were intended, they would be more difficult to decipher by the enemy, should they fall into his hands, than ordinary longhand messages. On outpost duty reports could be sent back much more fully and expeditiously than can be done at present. Officers with patrolling or reconnoitring parties invariably experience great drawbacks in not being able to record the results of their observations rapidly; and just at the moment when quick writing would be of the utmost importance, they have to write longhand, and their reports are consequently only too frequently much curtailed.

It will be of great service to officers in such circumstances if they are able to jot down a full message in a moment in shorthand, and send it off immediately and proceed with their reconnaissance, instead of having to stop to make notes in longhand or to trust to their memories. Phonography will be of great assistance in the compilation of reports and histories of campaigns and actions. As each phase occurs its description will be fully and faithfully recorded, so that at the conclusion ample materials will be at hand for a complete history or report. Thus the difficulties that have been experienced in the past of reconciling the conflicting accounts of those who, owing to their inability to write shorthand, were necessarily compelled to trust to brief notes or memory will be avoided. During the manœuvres of 1894 an officer who had been for many years an expert phonographer took down the various statements made by the commanding officers at the conclusion of each day's operations, with the result that at the end of the manœuvres he had a very full and instructive narrative of the course of events, including the ideas and intentions of the different commanders, and the manner in which they endeavoured to carry them out.

"One of the most important functions in war is to *receive orders*. Just

for this purpose shorthand will be extensively used in a future war, and this will be of advantage not only for him who has to do directly with the receipt of the orders, but for the whole army, in consequence of the saving of time thus effected. Let us imagine an army to be on the march. Having swallowed some food in all haste, the aide-de-camp on duty mounts his second horse, or a peasant's cart, and proceeds to the staff quarters of the division, sometimes situated several miles distant, in order to obtain the orders for next day. . . . The orders often fill several pages, and during the evening, or rather during the night, before they reach the battalion or company, they have to be corrected, additions made, and again dictated several times. The saving of time may amount to hours if the orders can be dictated to shorthand writers."—*Stenographic Courier* (Wiesbaden).

No doubt many other instances could be cited of the uses to which phonography might be put, both in the office and in the field; but I think I have mentioned sufficient to show that its introduction generally for Army purposes would shorten considerably the labours of officers and clerks in our staff offices, and tend to increase the efficiency and expedition of reports and messages in the field.

I now turn to the advantages that would accrue to non-commissioned officers and men on leaving the Service, who possessed a thorough knowledge of phonography. Many well-conducted N.C.O.'s and men leave the Service after having received good education, served for years as clerks in our various offices, and earned during their stay with the colours good or exemplary characters, yet are unable to obtain employment in the capacity of clerks in civilian offices merely because they are unable to write shorthand. The first question that is put to a candidate for the position of clerk is, "Are you a proficient shorthand writer?" It will be a great boon to a large and deserving class of soldiers if by encouraging them to master the subject whilst in the Service, we enable them to answer the question in the affirmative.

As to the best manner of encouraging and fostering the study of shorthand among our N.C.O.'s and men, several proposals have been put forward. It has been suggested that phonography should be included as one of the subjects taught in Army Schools, but to this there are objections, the principal being that our Army schoolmasters have already as much work on their hands as they can manage with efficiency to carry through; and the multiplicity of subjects taught in the schools is such that it does not appear practicable to introduce an extra subject, requiring so much attention and instruction as phonography would do. If the formation of classes such as have already done such good work in several of our garrison towns, and at which soldiers are enabled to obtain a thorough knowledge of shorthand on payment of a nominal fee, be extended to all military centres, and facilities given to those outside these centres, should they so desire, to attend, it is probable that the increased pay now sanctioned for clerks who can write shorthand, will induce large numbers of N.C.O.'s and men to embrace the opportunity thus offered of acquiring the knowledge of a subject which will, in all probability, bring them

increased pay during their service, and which will insure them a means of livelihood on their return to civil life.

A small percentage of N.C.O.'s and men from each unit having been thoroughly trained at these schools, the establishment of regimental classes at out stations will naturally follow. It has always been a pleasing feature in the history of Phonography that those who have mastered the art have ever been ready to assist those less advanced than themselves; and military phonographers will not, I am convinced, be behind civilians in this respect. We may, therefore, confidently look for assistance in the formation of regimental classes from those who have been fortunate enough to have had the opportunity of acquiring shorthand at garrison schools and elsewhere.

Whilst on the subject of learning shorthand, I should like to dispel, if I can, some misunderstanding that seems to exist, as to the difficulty of mastering it. It is by no means the laborious process that some have imagined. Indeed, I think, those who have defeated what may be termed the "grammar of phonography," and have commenced to write sentences (which stage may very well be reached in a fortnight) will agree with me, that there is something peculiarly fascinating in cultivating what has been well termed the "winged art."

Anyone of ordinary intellectual capacity can learn it sufficiently to write from seventy to eighty words a minute by working two hours a day for six months, but the work *must* be regular, two hours a day ensuring far greater progress than four hours every other day. From my own experience, I can say that four months, working on an average three hours a day, should be quite sufficient to obtain the eighty words a minute certificate. The system can very well be learnt without a teacher by the aid of "Pitman's Shorthand Instructor," but I would advise all who can do so to obtain the assistance of a personal instructor. When one is self-taught one is very liable to fall into errors which are difficult to eradicate later on; besides which, the course of study, and the system on which to study, are both matters on which it is well to obtain good advice.

Great attention should be paid to reading practice. Everything that is written in shorthand should be read back, and, in addition, shorthand literature should be systematically perused. There are several phonetic papers and journals published containing interesting matter, such as reports of important speeches and lectures, short stories, phonographic news, etc. Of these the most useful for learners is perhaps the *Phonetic Journal*, which is published weekly.

Those quartered in or near London cannot do better than consult 1st Class Staff-Sergeant-Major McFarlane, who has been very successful in teaching the system, as to their best plan for commencing the study of phonography.

For officers it may be noted that very high rates of speed are not absolutely essential—eighty words a minute would, for practical purposes, fulfil all requirements. In taking down a letter or report, a staff officer

would rarely find a dictator exceed that speed ; whilst for notes in the field, rough copies of reports, etc., it will be found ample.

It is sometimes urged as an objection to shorthand, that valuable as it undoubtedly is to the man who uses it to make notes for his own perusal, it is doubtful whether phonographers can be depended on to read each other's memoranda. There are, of course, bad shorthand writers, just as there are bad longhand writers ; but it has been stated over and over again by those experts who have given much time and thought to this point, that they would infinitely rather undertake to decipher badly-written shorthand than equally badly-written longhand. However this may be, we can guard against any danger arising on this account by insisting on our military phonographers being thoroughly proficient, both in theory and speed, before employing them in our offices or elsewhere.

A paper on shorthand can hardly be considered complete without some reference to what has been termed the "sister art," typewriting. It forms a valuable adjunct to shorthand in the office. When shorthand has done its work the typewriter steps in, and materially lightens the labours of the clerks and accelerates business. Besides the saving of time, it enables us to take several copies of the letter or order ; while the clearness of type-written matter compared with manuscript is in itself sufficient to justify its introduction into all staff and regimental offices.

Phonography is now in general use, both at the Foreign and Colonial Offices. Business men everywhere have recognised its enormous advantages, and agree that without its assistance it would be impossible to carry on the work in their offices. Moltke has declared that "shorthand is indispensable for an army." Continental armies are utilising it for military purposes. With these examples before us it is surely time that we, too, should endeavour to reap the benefits which would assuredly follow its general introduction into the Service. In advocating such a proposal, we cannot, of course, expect that such a radical change as the substitution of phonography for our present system can be effected at once ; but, with its advantages more thoroughly understood, we may look forward with confidence to the time when all correspondence on military matters will be carried on by the aid of shorthand. If this paper hastens in however small a way such a desirable result, it will more than have accomplished its purpose.

The CHAIRMAN :—I now invite discussion. There are one or two gentlemen here well capable of giving an opinion on shorthand.

Captain W. St. JOHN HORNBY, R.N. (retired):—My lord and gentlemen, I think we must all agree that we have had a very interesting lecture ; but at the same time, whilst I shall endeavour, so far as my abilities allow me, to criticise this lecture and the system of shorthand advocated therein, I trust that the remarks which I make will be received by the lecturer in the spirit in which I make them. In the first place I hope that, before the system of Pitman's shorthand is decided upon by the military authorities to be introduced into the Army, care will be taken that other systems of shorthand (which are equally and even more efficient) have a fair trial. I say this because I think that, notwithstanding the beauties of the system of the late Sir Isaac Pitman, it has many great deficiencies. It is probably the most complicated system of shorthand that has ever been invented. The basis

upon which it is constructed is, as the lecturer has said, what are called in shorthand heavy and light inflections, heavy and light signs. All shorthand systems, or very nearly all, are formed upon one general principle, namely, dots, right lines, and curves—and Pitman's is no exception. One of the reasons, I presume, that induced Mr. Pitman to introduce these light and heavy strokes, or, as it is called in the shorthand world, the "shaded" system, was, no doubt, because there are not straight lines or segments of a circle enough to allow you to have every letter represented by one of those things. Pitman—I use the word Pitman because I think it is better than saying Sir Isaac each time, as it is the system we are talking about, and not an individual—also introduced the system of putting on hooks and crooks to the *stem* letters, thereby getting greater power or elasticity by making *double* consonants. The lecturer has not gone into that particular part. It is a very good thing in its way, and it shortens the writing; although, on the other hand, it complicates the writing, especially when you come to read it. Pitman's is a very beautiful system when it is written by the great masters of the art, and when it is lithographed; but when it is applied in a practical manner by those who are not brought up to write shorthand from their youth, then these hooks and crooks and small curves confound the writer, and when he comes to read his shorthand he is regularly non-plussed. It takes *three times longer* to learn the system of Pitman than it does any other system, and not only that, but it takes *three times as long to write it out*. The "joinings" in Pitman's system are not so good as represented by those who naturally favour their own system. If the lecturer might use a blackboard here, I should ask him to put the upward R and M together, writing quickly. I doubt whether he could do it clearly in rapid note-taking, unless he is an able and experienced man, because it would be confounded with the L, probably, or some other letter. When a shorthand writer is writing in the Courts on his knee, in a bad light and so on, these multiplications of lines and curves, hooks and crooks, contradict one another; so that when he comes to write them out he is, as I said before, quite at a standstill, and so loses valuable time and makes grievous errors. Pitman's shorthand writers are three times as long in transcribing their notes into longhand as are the writers of any other system. There are other systems of shorthand, notably Taylor's Improved, and Gurney's system. Gurney's system has stood the test of ages, and so has Taylor's. The great beauty of Taylor's system is the peculiar facility of joining the characters, so that when the signs for the different consonants come together they join each other by means of a small circle, and thus the outlines and words they represent join together at once. For instance, the letters M and B in Pitman's shorthand written quickly are very difficult to form together clearly; but if you were to take, I will say for the sake of example, Taylor's system, there would be the M, which is a small round circle on the stem of the horizontal stroke, and then the B, which is another circle and down stroke; so that there would be no clashing of outline when you came to read and transcribe them. In the same way I will take the word "seemed." In Pitman's shorthand it is S-M-D, but the M and the D in writing quickly cannot be formed neatly or legibly, and this causes the greatest difficulty in the transcription of the notes. The same may be said of the upward R and the M; if you are writing the word "room," for instance. In Taylor's the upward R is the same as in Pitman's, but the M is a little circle and a straight line, so that the junction is easily made. The same may be said of the two letters L and M. L and M, written quickly in Pitman's, are very difficult to "outline" properly, and generally look like L and MR (which Pitman calls "mer"), and the L and M written quickly together are really like "L-mer"; whereas in Taylor's system there would be a circle and the upward L, and then a little circle and a horizontal line, and there is no confusion whatever in it. There are other complex things with regard to Pitman's; for instance, the forms for the words "I am" and "of my" are in the "advanced style" *precisely* the same. I could go on a long time pointing out such things as that, but there are other things I

wish to speak upon. With regard to the rapidity of writing, I do not think there is the slightest distinction to be made between them. I believe that a swift writer of any of the systems, either Taylor's, Taylor's Improved, Odell's, Odell's Improved, or Gurney's, can write absolutely the *ipsissima verba* of any speech. It is nothing to say that Pitman's can do it: all the great shorthand writers can do it. The reason why Pitman's system has gone ahead so much—that is to say, why the percentages are high—and I believe they are correct—is that Sir Isaac Pitman took the matter up in a very practical, business-like way, and *advertised* largely, and went very much into Phonography as a *business*. It was his hobby, no doubt, originally, and he kept improving and improving, as he called it, until at last he got it to a certain pitch; but during that period the changes were so great that the practical shorthand writers, who could not keep pace with such constant changes and new yearly editions, formed themselves into a branch, and stopped at what they called the Tenth Edition; and one of the smartest writers of Pitman's system, Mr. Thomas Allen Reed, branched off at the Tenth Edition, and does not write Pitman's system of modern times. He stopped there, and writes the Tenth Edition. The legibility of Pitman's system of writing has been ruthlessly sacrificed to extreme brevity. The hooked letters look very pretty when joined in lithography or by the first-class writers, but it is very difficult to attain facility in writing them when they are written by people who are learning. There is also the cutting off from the full size of letters, and making them of two sizes; it not only complicates the system, but it is illogical in its way; because you subtract, so to speak, from the letter, and yet call it *more*, not less, as it *adds* to the value of the letter and word. The lecturer, at the commencement of his paper, says that Sir Isaac Pitman recognised the principle of writing by sounds. Now, as a matter of fact, sound-writing has always been the gauge of shorthand. All writers of shorthand have written by sound to a certain extent, and Sir Isaac Pitman has only developed it a step further. As far as absolute writing by sound goes, it is really very absurd to make so much of it, because there are no two speakers who speak or pronounce alike. If a Westcountryman is talking you do not put down the sound *exactly* as he pronounces it, as that would be a most extraordinary thing to do. In the same way, if a speaker was a Lancashire man or a Yorkshireman, it would be most absurd to really write by sound. Shorthand writers are not *really* writing by sound, for no two speakers pronounce their words in precisely the same manner. The lecturer told us that in the German Army they encouraged officers and men in the study and knowledge of shorthand, and I sincerely trust myself that the same will be done in our Army.

Major-General Sir CHARLES W. WILSON, K.C.B., K.C.M.G., R.E. (Director-General of Military Education):—We have with us this afternoon Dr. Gowers, a Fellow of the Royal Society, who is, I believe, one of the most skilled phonographers in London. About two years ago he forwarded a memorandum on the use of shorthand in the Army to the War Office; and he has always taken the greatest interest in the steps taken to encourage its study. I believe he has to keep an appointment, and if you would permit him he would be very glad to speak.

Dr. W. R. GOWERS, M.D., F.R.S.:—My lord and gentlemen, I beg to thank you for permission to say a few words upon a subject which interests me greatly. My justification for presuming to do so is that we are endeavouring, not without success, to foster the use of shorthand in the profession of medicine. We have established a "Society of Medical Phonographers," which now numbers nearly 300 members, and which is doing very definite good. I have handed up some of the publications of the society to Captain Caunter, whose instructive lecture we have just listened to. In connection with our efforts there is one point, which I will come to in a moment, which is of considerable importance with regard to the future use of shorthand in the Army—because that it has a future no one who has made use of it in varied work can possibly doubt—and that that future will be the

future of Phonography and of no other system is a matter about which there cannot be two opinions. Taylor's system, of which we have just heard, was the system which the late Sir Isaac Pitman wrote before he invented Phonography; and Gurney's system, once a rival, is now extinct as far as instruction books are concerned, there having been no publication in connection with that system for a long time. Phonography is not only the system by which writing has been done nearly 50 per cent. more rapidly than with any other system of shorthand ever invented; but, far more than that, it is the only approximately perfect system of writing ever devised for any language in the world. It is the only system in which simple sounds are represented by simple signs, allied sounds by allied signs, single sounds for the most part by signs produced by single movements of the hand. If its study is more difficult than that of other systems, its legibility is greater, and so is the educational influence of its study. But this discussion, I conceive, is to be on the question, not of the system of shorthand or of the quality of shorthand, but on the value of the use of shorthand in the Army. It has always seemed to me that there are circumstances—there must be at some time in the future circumstances—in which the value of the use of shorthand by an officer in the Army would far transcend in importance its use under any other circumstances whatever. We who have used it in medicine and science have become acquainted with its influence on observation. If shorthand is written at only three times the speed of longhand—and so written it is as legible as print to anyone who has even a moderate proper acquaintance with it—in a given time there can be recorded twice as much of the facts observed, and therefore twice as much time is left for the process of observation. Now, observation depends largely on record for its value. Unrecorded observation is comparatively unprecise. A man has only to attempt to write down the facts that he is observing, to discover that on this or that point he is vague, uncertain; he has to look again and again as he describes in writing what he sees. The influence of shorthand is less on the quantity of work than on its quality—it enables work to be better done. Am I not correct in assuming that there are circumstances in which a difference in the value, the accuracy, the precision, the fulness of the observations made by a reconnoitring officer, and the fact that he brought them back recorded on the spot when the facts were before him, that these, compared with the less perfect results of observation which he would also retain, less accurately, in his memory, or record less fully and precisely in longhand, might make all the difference between victory and defeat in a succeeding battle? That, of course, would be a rare circumstance, but it surely is possible? Apart from that, for an officer of the Army who has much writing to do, shorthand is of extreme value for all purposes of personal writing, for all note-taking, note-making, for all drafting of reports, and the fact that with uniformity of system—which, as the lecturer has observed, can only at the present day be obtained with Pitman's system—a man's own writing is available for transcription or type writing by any subordinate. I may mention that the most distinguished professional shorthand writer, who writes another system (I am not at liberty to mention his name, and so cannot mention the system) told me that, for general use he did not think it likely that, in the future, the ingenuity of man would devise a better system for general use than Pitman's. I am obliged to be personal because facts have a weight which nothing else possesses, and that which is and has been the actual experience of one, may be, in varying degree, the experience of all. I can speak of the advantages of personal and professional use from my own experience. For more than thirty years I have written nothing for personal use except in shorthand. My notes of cases, taken by myself in shorthand with a fulness and, I believe, an exactness and accuracy which I could not have secured otherwise, are of inestimable value to me. I have used shorthand in all the processes of comparing and analysing these facts and those described by others, in all the processes of composition, and in writing the drafts of articles and books—

the amount of which is a source of some consternation to me, but of which the only complaint I hear is that they are too condensed, not, as might be thought, too diffuse. At the present time I write ten times as much phonography every day as I do longhand, for I think all my letters in shorthand, many of them in a moving carriage in the streets of London, and so written they are perfectly legible; and my clerk, who is not a medical man, typewrites them in the evening with seldom an error, and seldom has to ask me what an outline is, unless perhaps it was written, say, in Fitzroy Square—although I think most of the outlines could be written even in Fitzroy Square between the jolts. The value to the medical man of shorthand is, that it enables him to record the facts that he observes and makes that which would otherwise be vague experience definite knowledge, because the recorded facts are available for future observation, for comparison, and of extreme importance, not only for the increase of his knowledge, but also for informing him with regard to the patient at future times. You will discern, as I cannot, the application of these facts to the exigencies of military service and duty. If I were to say all that I have to say, I am afraid I should occupy more time than the lecturer has done; but he made two statements which I should like, if I may, to venture to qualify. He should have substituted "one hour" for "two hours" in the six months of study. It is a fact which I have taken some pains to verify, that with an hour a day for three months, a man can write shorthand as fast as longhand, and read it with ease; in the next three months he will have gained by use most of the speed he needs, and during the following six months his use of shorthand can save him all the time he gave to its acquisition; so that, at the end of a year, he starts fair again with this time-saving and labour-saving art at his disposal for pure benefit. The second point is, that a student should not attempt to take verbatim notes of lectures. These are too long. But by the aid of shorthand he can take an epitome more perfect and useful than is possible otherwise, and yet give more attention, and retain more of the lecture in his memory than if he took no notes. I used no text-books for my own examinations, except such shorthand epitomes, never transcribed, and passed the examinations, not only without difficulty, but with a good deal more which I need not describe. I found such epitomes, with longhand marginal headlines to the paragraphs, more useful than any text-book. It is thus, and in other ways, as for notes of observed facts, which make the observations so much more instructive and effective, that the student can make shorthand so valuable an aid.

Dr. Gowers desires to add the following statement, to which he referred (as intending to make) at the commencement of his remarks, but was prevented making by the time-limit:—

A petition was presented last year by the Society of Medical Phonographers, supported by the signatures of many eminent members of the medical profession, to the General Medical Council, asking for shorthand to be sanctioned as an optional subject at the preliminary examination which intending medical students have to pass. The examinations that are accepted are numerous, and at two or three, shorthand is already an optional subject, but marks may be given to medical students only for the subjects sanctioned by the Council. In response to the petition, the Medical Council recently passed resolutions that a knowledge of shorthand would be useful, and that a small number of marks may be given for it, as an addition to the examination in English, by those who choose to present the subject. The importance of this is that it facilitates very much the addition of shorthand as an optional subject. To allow a small number of marks to be gained by a knowledge which should be accurate, but which need not be advanced, or involve speed, which would enable it to be of some personal advantage, and serve as a basis for its development by use, is a much less serious thing than the addition of it as a special optional subject involving considerable skill. The fact that shorthand is now taught in almost every public school, except, I think,

Eton and Harrow, makes its introduction in this way not at all unreasonable to candidates; and in those schools it would probably soon be a subject that could be learnt, if this permission were given. It is, moreover, an advantage to promote the use of an uncontracted style of shorthand (the "corresponding style"), by which all its personal use and chief service can be gained, and the employment of which would quickly lead to the disappearance of all objections based on suspicions of illegibility. A statement regarding these facts, in their relations to the preliminary examination for medical students, will shortly be circulated by our Society among the examining bodies and chief schools.

Lieut.-Colonel T. E. BAYLIS, Q.C. (late 18th Middlesex V.R.C.):—My lord and gentlemen, Perhaps it may seem remarkable that after so many experts have spoken I should rise to make a few observations. But first of all, I may say that although so few members are present to-day, the lecturer will yet have the satisfaction of knowing that his lecture, with the discussion upon it, will be circulated by the JOURNAL among the whole of the members of the Institution in different parts of the world. With regard to the title of this paper, "Shorthand in the Army," I think there can be no doubt whatever that there would be advantages if the acquisition and use of it by officers were more general. The lecturer has shown to us that the word "communication," which takes nearly forty strokes in ordinary writing, can be represented in shorthand by three strokes. But there is another element introduced in the paper and discussion as to what system is best, and I think if we go into that question, considering the numerous systems there are in existence, we may talk until to-morrow morning and not arrive at any conclusion. We know the part that shorthand plays in the every-day experience of our lives; we have only to take up our morning papers to see the advantages of it. Nothing has improved more during the course of my life, perhaps, than the practice of shorthand. I suppose the system of shorthand in use by reporters at the present day is as perfect as it can be. We find in our courts of law how accurately everything is reported. A uniform system could be introduced into the Army, and its brevity and legibility would make it extremely useful. I began shorthand as a young man, but I left it off because of the difficulty in reading it. If this lecture can only induce the officers of the Army to believe that the acquisition is not so laborious as is often imagined, that alone will do a great deal of good.

Captain H. A. JONES, 22nd Middlesex (Central London Rangers) V.R.:—My Lord and gentlemen, I do not hold a brief for either Mr. Taylor, Mr. Gurney, or the late Sir Isaac Pitman; but on such an occasion as this, after my professional experience as a journalist, I think it would almost be criminal on my part if I did not say something in reply to the arguments advanced on the subject of shorthand in the Army by Captain Caunter. I make bold to assert that he has made out a case for shorthand in the Army that is no stronger, but which is, if anything, possibly weaker, than that for any civilian sphere of business. I am with him entirely that for purely clerical work in district or regimental offices, shorthand, either on the part of the officers engaged therein or on the part of the clerks, is a decided and thorough-going advantage. In the compilation of reports it would also be of advantage, and possibly to young officers attending classes or courses of instruction, a knowledge of shorthand, together with the faculty of writing and afterwards reading it, would be useful. But when the lecturer goes on to say that for the purposes of taking notes in the field or conveying messages, shorthand would be useful, I am entirely at variance with him. The great object of writing orders at all is that they should be legible; and while I agree that when shorthand is written by professional shorthand experts it may be read by other people, yet when written by those who are not so proficient—and it takes very many years' practice to attain that degree of proficiency—it cannot always be read by other persons. As a journalist of a number of years' experience, and as a phonographer myself, I have been with practical pressmen and shorthand writers in various

parts of the country—some of them the most expert men in my profession—and I have seen occasions arise when practically a conference of war had to be called of the men who had taken notes of speakers to find out what was said, and whether what they had apparently on their notebooks could have been said. Such possibilities as that in the military service, I think, should be avoided; and the introduction of shorthand for the writing of orders or instructions in the field would, in my opinion, be a very serious and dangerous expedient. In my experience, and in the experience of journalists generally, there are very few men indeed who can read each other's notes. The official reports of the Law Courts and of the great arbitration cases are taken by gentlemen who have been brought up to a particular edition and carefully schooled in a particular style of Pitman's, or Gurney's, or Taylor's, or anyone else's system; and under the instruction of one head I grant that it is possible for notes to be transcribed by assistants; but in newspaper work it has been found an absolute failure. I make these submissions, Sir, with very great respect; and before I sit down I would make one further remark, namely, that shorthand to be legible, even to the person who writes it himself, has, in my opinion, to be written far more carefully than longhand has; and I am convinced from my own experience that to write legible shorthand on horseback is an impossibility.

Colonel LONSDALE A. HALE, late R.E. :—My lord and gentlemen, I should like to say a word with regard to this subject. I like to see a man ride his hobby as hard as he can when he mounts one, and I quite agree that my friend has ridden his hobby rather hard when he suggests that outpost reports should be written in shorthand. We have, however, next Friday, in this hall, a kriegsspiel, showing the work of a cavalry screen covering many miles of country. I have just been engaged, as I am in charge of the arrangements, preparing reports which have to be sent in from a special patrol. Those reports from the special patrol will pass through a variety of hands. They will have to be shown to the first patrol that is met in the other direction, and perhaps then have to be shown to the commander of a squadron. They will then go to the patrol of a screen, and will pass through and be read by half-a-dozen men of all ranks and classes before eventually they reach their destination. I therefore cordially agree with Captain Jones that you never by any possibility could introduce (it would be dangerous to do so) shorthand for that class of messages in the field, because you would have to prepare the ordinary Tommy Atkins of the cavalry to read shorthand. Of course, the value of shorthand, kept to the higher branches, cannot be over-rated; but still I think Captain Caunter has ridden his hobby a little too hard when he proposes to carry out what I may call the passing of messages written in shorthand through the hands of the ordinary soldier of the Service.

Captain J. E. CAUNTER, in reply, said :—I do not know that I have anything to add to what I have said in the lecture, but I should like to make one or two observations upon some points which have been raised in the discussion. Captain Hornby went into a long argument as to which is the best system—Pitman's, Taylor's, or Gurney's. Now, it does not matter to me one penny which system is introduced into the Service; but what I say is, let us have one system, and one system only, whether Pitman's, Taylor's, or Gurney's, or anybody else's. At the same time, I think he was entirely answered by Dr. Gowers, and that it is an undoubted fact that Pitman's is the system most in use in the country. What I stated as to the percentages of people using Pitman's shorthand has not, I think, been disputed—namely, that his system is used much more than any other system, and that 93 per cent. of the writers of shorthand write Pitman's. Even on no other ground, if Pitman's were not any better than Gurney's or Taylor's, I should still say introduce Pitman's into the Service, if you introduce any system, because it is so much more in general use. If we have a system at all, let us have one system, and one system only; that is the great point I want to impress upon you.

Captain Jones considers that shorthand is valuable in the office, but is of no use in the field; and to a certain extent Colonel Lonsdale Hale agreed with his views. As far as the case of a soldier having to handle a report or anything else of the kind goes, no doubt shorthand would be of no use; but I take it there are a very small number of cases in which the private soldier has to read reports. Of course, in cavalry scouting he might occasionally have to read such messages, and in that case I am willing to acknowledge shorthand would be of no avail, because we cannot expect to teach shorthand to every soldier. I think if officers did know shorthand they would not find there were very many drawbacks in messages being sent in shorthand on account of men being unable to read them. One thing Captain Jones said I cannot agree with—namely, that shorthand cannot be written in the saddle. Now, if you can sketch a piece of country in the saddle (and beautiful sketches are turned out in that way), surely you can write shorthand. Dr. Gowers can write shorthand even when he is being jolted about in a carriage, except in crossing one particular square. I do not mean that you could write shorthand whilst trotting—you must be still; but I consider that with the greatest ease you can write shorthand, and legible shorthand, whilst sitting in your saddle. Dr. Gowers observed that I gave students too long a time to learn shorthand. The object of my paper all along, though Colonel Lonsdale Hale does not quite agree with me, has been rather to minimise, in my opinion, at any rate, the advantages of shorthand, not to claim more for it than we can substantiate; and, although perhaps a man can learn shorthand working one hour a day in six months, I think the time I have stated would give better results. I took the trouble to get a good deal of advice on the subject from different people who taught shorthand, and I put the time at what I considered was the longest that a man of ordinary intellectual capacity would take.

The CHAIRMAN (Major-General Lord Methuen):—Gentlemen, I think we have had a very interesting lecture, and one that has not claimed too much for shorthand. As far as the subject itself is concerned, I agree with Captain Caunter that he has put the minimum limit on the time required for learning shorthand, so far as I can ascertain. I know nothing personally regarding shorthand, but it has always seemed to me that the great difficulty is the length of time that it takes to acquire it; and when a man is busy he has to think to himself: How shall I make the best use of my hours to day? and two hours a day for six months is a very long time for a hard-working man to give to any one subject. I would urge that schools should be impressed with the value of including shorthand in their course of teaching. Whatever we learn in our youth is far easier picked up and better impressed than it is at a later period of life. As far as the Army is concerned, I think the matter rests a good deal with the authorities. I am not quite so sure that I myself was not instrumental to some extent in getting shorthand brought forward as a subject for the staff clerks, for I think I did speak to Sir Charles Wilson, Director-General of Military Education, about it.

Sir CHARLES WILSON:—Yes.

The CHAIRMAN:—As regards the officers, it is just a question whether it is a luxury, or whether you think it is a subject that is more valuable for the officers than some of the other subjects they are at present taking up for the Staff College. If the authorities think so, the only way to get officers to learn shorthand is to give them some inducement, as in the case of a modern language. If it is worth it, let them be paid so much. But I do not think you will get officers of their own free will to sit down and work two hours a day for six months in order to learn shorthand writing. There is no doubt whatever about the value of shorthand. I had one officer on my staff (Colonel Cox) who was always writing in shorthand, and it was of the utmost value to him and to myself. So also is it with a lawyer. I know of one lawyer in particular, who told

me that he went to his office at eleven o'clock, read his letters and dictated to his clerk the answers, and then he went to his other work, and when he came back he found all his letters written out ready for him to sign. I have no doubt whatever that, as far as staff clerks go, we could make it a *sine qua non* that they should know shorthand sufficiently well to make a practical use of it in their work. But as regards the officers, it is a very different matter. I quite agree with Colonel Lonsdale Hale as to the impossibility, at any rate the difficulty, of expecting reports to be sent from outposts without the danger of a mistake. The reports from the outposts are not as a rule long—at any rate, I, as a general, hope they may not be so; the shorter the better. The great thing for us is to get a piece of paper on which is written something we can understand in a moment, without having to pick it out as best we can. As to writing shorthand on horseback, that entirely depends, I venture to say, on the number of flies about. Given a quiet horse and a day when the flies are not about, I think you might write shorthand while in the saddle; but I think that both sketching and writing shorthand on horseback is a matter often of considerable difficulty. Before I close, I have to thank the audience for the discussion. Considering the small number present, I am bound to say that the discussion has been carried on for a greater length, and has been much more interesting, than some of the discussions we have had here. We have also to be specially grateful to Captain Hornby and Dr. Gowers for the manner in which they spoke upon the paper—Captain Hornby for pointing out the advantage of one system over another, and Dr. Gowers for giving us his immense experience in shorthand.

SWISS REGIMENTS À L'ÉTRANGER.

By Lieut.-General F. H. TYRRELL, late Indian Army.

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THE interesting account of the Swiss Army of to-day, given by Major Gretton in the October and November numbers of last year's JOURNAL, suggested the subject of the following paper, which has only an historical interest. Switzerland is to-day the most pacific of countries; and the Swiss are the only European people who possess no Standing Army. Yet barely a hundred years ago the Swiss might have been well esteemed the most military nation in Europe, or in the world. A much larger proportion of their population followed the trade of a soldier than in any other country. Besides their national forces, there were from forty to fifty thousand Swiss citizens serving as mercenary soldiers under foreign flags in the Imperial Armies and those of the Kings of France, Spain, Naples, and Sardinia, and the Republics of Venice and Holland. Most of the noble, and many of the bourgeois, families in Switzerland followed soldiering as an hereditary calling, and handed down the proprietary colonelcies of regiments in foreign Armies from one generation to another. The same family names recur in the muster-rolls of the Swiss regiments à l'étranger during centuries. We find a Swiss regiment de Roll serving in the Spanish Army in the Netherlands in 1574; and again under the Lion of St. Mark during the Turkish war, 1684-99; and a

Swiss regiment de Roll in the British Army List, taking part in the Peninsular war. We find the names of Stockalper and Riedmatten as captains of Swiss companies under Henri Quatre, and a brigadier-general and colonel of the same name among the superior officers of the Swiss soldiery which crushed the revolution at Naples in 1848.

The noble family of De Courten, in the canton of the Valais, boasts of reckoning twenty-three general officers in its pedigree. There was a Valaisan Regiment de Courten in the service of the Kings of France; another Regiment de Courten in the Army of the King of Sardinia; and a De Courten is now the captain of the Company of Swiss Guards of His Holiness Pope Leo XIII.

The Swiss, like most races of mountaineers, possess in an eminent degree the military virtues of courage and endurance; and to these was added the merit, rarer among mercenary soldiers, of scrupulous fidelity to their engagements, and unswerving loyalty to their employers. To their nation belongs the credit of restoring to infantry its proper rôle in the campaign and on the battle-field, which had been temporarily suspended by the adverse influences of the feudal system. The Swiss phalanx of pikes withstood the shock of the French gendarmerie in the "battle of the giants" at Marignano; at Sempach and Morgarten the mountaineers routed the chivalry of Austria, and at Grandson and Morat that of Burgundy. Their apprenticeship to arms was passed in gaining and maintaining their national independence, and that object had been fully attained by the end of the fifteenth century; the fate of the Archduke Leopold of Austria and of Charles the Bold of Burgundy effectually warned off all trespassers from the frontiers of the territories of the Helvetic Confederacy. The adventurous youth of the cantons, finding no outlet for their martial instincts at home, began to seek for service under foreign flags; and with the establishment of Standing Armies on the Continent, the Swiss mountains became the favourite recruiting ground for the Lords of Legions.

But the Governments of the Confederacy and of the cantons kept the supply of recruits in their own hands, and granted levies of troops only to allied Powers on "capitulations," as the agreements were called which specified in detail the terms on which the services of the troops were granted, and the remuneration required for them, down to the most minute particulars of pay and equipment. The companies and regiments raised by the cantons, and lent to foreign States under this system, were at first hired out for the duration of a war or for a definite term of years. Wars lasted generally over a long period in the sixteenth and seventeenth centuries; and a campaign was commenced only in the spring, and continued till the autumn, when the Armies went into winter quarters. There was plenty of time to raise, organise, and equip a force on the breaking out of a war before the Army took the field; and to train recruits to fill up the gaps in the ranks made by one campaign before the commencement of the next one. There were besides usually plenty of veteran soldiers whose term of foreign service had expired, ready for re-engage-

ment in Switzerland. Sometimes whole regiments, liberated from the service of one foreign State, were immediately re-engaged by another. All the Standing Armies of the Continent were recruited by voluntary enlistment up to the middle of the eighteenth century, and most of them were so up to the time of the French Revolution; and this system, though supplemented by crimps and press-gangs, could not ensure a sufficient supply of recruits in time of war; hence the continual demand for the additional services of foreign mercenaries to supplement the military resources of a nation. England hired Hessians; France hired Germans and Irishmen; and nearly every one hired Swiss. The Federal Government of the Confederacy of the cantons was the largest trafficker in *chair à canon* in the European recruit-market; and the excellent qualities of the Swiss as soldiers ensured a steady demand for their services. The negotiations for their supply were carried on with all the forms of international diplomacy, but on strict business principles. *Point d'argent, point de Suisse*, became a proverbial saying; and the wealth which the Swiss citizen obtains to-day from the pocket of the pleasure-seeker, he then procured from the purse of the recruiting-agent. But the Swiss soldier repudiated the designation of mercenary; he represented himself as serving a foreign Power by virtue of its alliance with his own State or canton, of which he still remained a citizen in the fullest sense of the word; he was subject to the Swiss military code, marched to the tune of Swiss national airs, and flew the Swiss cross in his colours.

The levies of Swiss troops for foreign service were occasional and temporary until the reign of Louis XIV., who made his Swiss regiments into permanent and integral parts of the French Standing Army, and his example was soon followed by Spain, Holland, Naples, and Sardinia. The first Swiss levies were called "bands," and were of uncertain strength; the bands were divided into independent companies, and to obviate the inconvenience of so many and such small administrative units, these companies were collected in regiments; when the regiment was found too large for a tactical unit, it was divided into battalions. The first Swiss regiments in the French Army were single-battalion regiments of from twelve to sixteen companies; these were afterwards made into two-battalion regiments. It will be tedious to follow all the changes in the formation and equipment of the Swiss regiments from their first incorporation in foreign Armies to their final dissolution; the details of their organisation, etc., given here will refer to their condition as they existed in the latter half of the eighteenth century, between the Seven Years' War and the French Revolution.

SERVICE OF FRANCE.

Though the Swiss cantons originally formed part of the Holy Roman Empire, and owed their feudal allegiance to the Emperors, Swiss bands entered the service of his hereditary rival, the King of France, as early as the fifteenth century, in the reign of Louis XI., and their services were rendered successively to all his successors.

The bands and companies were first formed into regiments in the reign of Henri II. The Swiss played a considerable part on both sides in the religious wars between Catholics and Huguenots. In 1681, Louis XIV., obtaining a fresh levy of men from the Helvetic Confederacy, made the regiments so obtained regiments of infantry of the Line in the French Army. Le Grand Monarque had at one time 40,000 Swiss troops in his Army; his successor, Louis XV., had 30,000, but after the close of the Seven Years' War, their number was reduced to one-half by the battalions being placed on a peace footing.

The Swiss troops in the French Army under Louis XVI. consisted of the Company of Palace Guards, called the "Cent Suisses de la Garde"; of the Regiment of Swiss Guards, of four battalions of four companies each; and of eleven regiments of the line, of two battalions of nine companies each; in all, 14,000 bayonets.

The whole of these troops were under the control of a general officer, called the "Colonel-General of the Swiss and Grisons," who fulfilled the functions which would at the present day belong to an adjutant-general. This functionary was at first a Swiss nobleman delegated by the Confederacy to command the whole body of their troops in the service of any foreign Power; but King Charles IX., of St. Bartholomew fame, made the post a permanent appointment on the French Army Staff; it was usually filled by a French officer of distinction, sometimes by a prince of the blood-royal. The colonel-general had a company in the Regiment of Swiss Guards, which was No. 1 Company of the 1st Battalion, and was always kept at a uniform strength of two hundred men; it had a staff like that of a regiment, consisting of a judge-advocate, an almoner or Catholic chaplain, a secretary and interpreter, a physician, and a surgeon-major, etc.

The company of the Hundred Swiss was raised in 1496, by King Charles VIII., and was one of the oldest military corps in Europe. It formed part of the guard of the interior of the Court, ranked next to the four companies of the Garde du Corps, and mounted guard with them. It was composed of a captain, who had the rank of colonel in the Army; two lieutenants, also with the rank of colonel; two ensigns, with the rank of lieutenant-colonel; two aide-majors (adjutants), with the rank of captain; eight exempts, or sergeants, also with the rank of captain; and six corporals, with the rank of lieutenant or second lieutenant, according to their standing; ninety privates, divided into squads of fifteen men each; four drummers, and a fifer. There were also four quarter-master-sergeants, a standard-bearer, a judge-advocate, a chaplain, a surgeon, etc., all with a superior grade in the Army.

The captain-colonel was always a Frenchman; the subalterns and sergeants were half of them French and half Swiss; the men were all Swiss by birth and Catholics by religion.

The company had three orders of dress. The State or gala dress was a Tudor doublet and trunk-hose of royal-blue slashed with crimson;

a black velvet toque with a white plume ; a starched ruff, white stockings, and white rosettes in the shoes.

The ordinary dress for parades and escorts was a royal-blue coat with scarlet facings, scarlet vest, breeches, and stockings, and gold lace ; a three-cocked hat, trimmed with gold lace, and white cockade.

The arms carried with the above dresses were a halbert or partisan, and a long basket-hilted sword.

When the Court was in mourning, the officers and sub-officers of the company wore black uniforms, of the same cut as their parade dress.

The field-service dress which was worn when the company followed the King to the wars, was of the same cut and colour as the parade dress, but less richly laced with gold. A fur grenadier cap and white spatter-dashes were worn with it, and white leather belts. The arms were a musket and bayonet, and a large sabre.

The company usually served in the field as a Grenadier company to the Regiment of Swiss Guards, and took its turn of duty in the trenches. The last time it took the field it served at the siege of Ypres, in 1744.

The colour of the company was blue, with the white Swiss cross. In the first and third cantons the crown and royal monogram in gold, in the second and fourth, a golden rock beaten by the waves of a silver sea. On the cross was the motto, *Ea est fiducia gentis*.

The Cent Suisses were disbanded at the Revolution, re-established by Louis XVIII. at the Restoration with all their old distinctions and privileges, and were finally dissolved by the Revolution of July, 1830.

The regiment of the Gardes Suisses was raised in 1614, by the gallant Swiss soldier of fortune, Gaspard Gallaty, who served three Kings of France, Henri III., Henri IV., and Louis XIII., and raised several regiments successively for their service. The latter monarch made Gallaty's Swiss into a Regiment of Guards by letters-patent, dated 16th March, 1616. It ranked as the second regiment of the French infantry, next to the Gardes Françaises ; its guards turned out only for the King and Queen, and for the colonel-general of the Swiss and Grisons ; and when it marched past the King at a review, the colonel-general rode at its head. Its captains ranked as colonels in the Army, its lieutenants as lieutenant-colonels, its sub-lieutenants and ensigns as captains.

The regiment had four battalions, each of four companies ; one company of Grenadiers and three of Fusiliers to each battalion.

The staff of the regiment was a large one, consisting of the colonel, the lieutenant-colonel, the major, four aide-majors (or adjutants, one for each battalion), five sous-aide-majors (one for each battalion, and one extra), eight ensigns or standard-bearers (two for each battalion), an auditor-general, a judge-advocate, a secretary and interpreter ; and four adjutants, with the rank of lieutenants, charged with the instruction of the recruits ; three chaplains, a quartermaster, and an assistant-quartermaster ; a physician, four surgeons, and eight surgeon-apprentices ; a drum-major, a commissary of rations, and eight provosts.

The colonel and lieutenant-colonel each had a company in the regiment. The major had no company; his office originally corresponded to that of our modern adjutants in the British Army, the majors at first being experienced professional soldiers, who supervised the drill and discipline of the troops and advised the inexperienced and generally untrained colonels and captains as to their military duties. Later, by a natural process of evolution, the major became the third officer in the regiment, and his duties as adjutant were delegated to his aides. The sub-officers, called adjutants in the French Army, acted as sergeant-majors to the battalions.

The general's company (the 1st Fusilier Company of the 1st Battalion) was the most ancient in the regiment, having been the colonel's company of a previous Regiment Gallaty, kept on foot when its companions were disbanded. It was always kept at a strength of 200 men.

Each company of Fusiliers had a captain, two lieutenants, and two sub-lieutenants as officers; and six sergeants, two quartermaster-sergeants, twelve corporals, and twelve *anspessades* (lance-corporals); six drummers, and 132 privates, divided into twelve squads of thirteen men each, including a corporal and *anspessade*.

Each company of Grenadiers had four officers, a captain and three subalterns; two sergeants, a quartermaster-sergeant, four corporals, four lance-corporals, one drummer, and forty Grenadiers, divided into four squads of twelve men each, including N.C.O.'s.

The strength of the regiment in all ranks amounted to 2,415 officers and men.

The uniform of the Swiss Guards was a scarlet coat with facings and revers of royal-blue, laced with silver; white waistcoat and knee-breeches, and long white gaiters. The officers wore silver gorgets, with a gilt medallion in the centre, on which the Royal Arms were enamelled; the plate of the waist-belt was of the same pattern. Field officers and captains had two silver epaulettes, subalterns one only. The three-cocked hat was bound with silver lace, and had cords and tassels of blue and gold. The sword knot was blue and gold.

The N.C.O.'s and privates had white braid instead of silver lace, and wore no epaulettes. The Grenadier companies wore bearskin caps, backed with blue cloth, and with silver or white cords and tassels encircling them.

The captains were armed with spontoons or half-pikes; except the captains of Grenadiers, who carried a fusil and bayonet, as did all the subaltern officers of the regiment, wearing a white pouch-belt and a blue and silver pouch. The field officers and those of Fusilier companies had silver-hilted swords, those of Grenadier companies had sabres. When the regiment marched past, the captains marched on foot with their companies, armed with their spontoons and fusils; but when it was manoeuvring, they rode in rear of their companies, armed only with their swords.

The sergeants carried halberts, and the rank and file muskets,

bayonets, and sabres. The belts were of buff leather, pipe-clayed, and the pouches black varnished leather, with a brass badge on the flap.

The drummers and fifers wore the Royal livery of blue turned up with scarlet.

The colours bore the Swiss cross, with red, blue, and purple flames on a ground of the colour of the livery of the colonel-general of the Swiss and Grisons, except that of the general's company, which was white, with golden fleurs-de-lis in its field.

The four battalions of the Gardes Suisses were quartered separately in different parts of Paris and its suburbs; the 1st Battalion, which was the strongest, as it included the general's company, was in billets; the other three battalions were in barracks. The guards mounted by the regiment were mounted by Fusiliers alone, or by Grenadiers alone; the two never mounted guard together.

The Gardes Suisses covered themselves with glory in many campaigns, serving in the field in nearly every war in which the French Armies took part. They remained loyal to the Monarchy and to their trust, when all the French troops had gone over to the side of the Revolution; the Gardes Françaises were the first to set the example of deserting their officers and their colours. The Swiss Guards all perished in their heroic defence of the Tuileries against the overwhelming numbers of the mob on the 10th August, 1792, or in the massacres of the Royalist prisoners in the following September. Thorwaldsen's noble monument of the dying lion at Lucerne commemorates their unswerving loyalty and their imperishable glory.

The eleven Swiss regiments of the Line were numbered in the regiments of French infantry of the Line, but they were never called by their numbers, but by the names of their colonels; while the French regiments were distinguished by territorial titles, such as the Regiment of Picardy, of Royal Auvergne, etc.

The practice of calling the regiment after the colonel makes the history of it difficult to follow, as the name changes with every change in the command.

At the time of the Revolution the Swiss regiments bore the following names:—

No. in the French Line			
63	The Bernese Regiment of Ernest	- Raised in	1671
64	The Regiment of Salis de Samade	-	„ 1672
65	The Regiment of Sonnenberg	-	„ 1672
66	The Regiment of Castellaz	-	„ 1672
69	The Regiment of Vigier	-	„ 1673
76	The Regiment of Châteaueux	-	„ 1677
85	The Regiment of Diesbach	-	„ 1689
86	The Valaisan Regiment of De Courten	„	1690
95	The Grison Regiment of Salis de Marschlinz	„	1734
97	The Zurichese Regiment of Steiner	„	1752
100	The Regiment Rheinach of the Bishopric of Basle	- - - -	„ 1758

The first and the four last of these regiments were raised on a capitulation with a single canton, and all the officers and men were subjects of one canton; the other six regiments were raised by capitulation with the Confederation generally, or with a group of cantons which united for the purpose, each undertaking to furnish a certain quota of the levy. Thus in the Regiment of Vigier two companies were recruited from Geneva, one from Berne, one from the Grisons, one from the Valais, and the rest from Fribourg and the Forest cantons. The capitulations were often concluded between the French Ambassador in Switzerland and some soldier of fortune who aspired to be the proprietary colonel of a regiment, and who obtained an order from the Confederation or the canton to authorise its recruitment within the limits of its jurisdiction.

The organisation of these Swiss Line regiments (called by the French *petites Suisses* to distinguish them from the Swiss Guards) was in two battalions of nine companies each, one company being Grenadiers, and eight Fusiliers.

The war strength of a regiment was over 2,000 of all ranks, and of the battalion 1,000; but in the reign of Louis XVI. the peace establishments, owing to the bankrupt state of the Treasury, had been reduced to a point incompatible with efficiency, and inadequate to the performance of the ordinary duties of camp and garrison.

The regimental staff consisted of a colonel, lieutenant-colonel, and major; a paymaster and a quartermaster; a surgeon-major, and a Catholic and a Protestant chaplain. The lieutenant-colonel and the major commanded the battalions, or, in their absence, the senior captain. The battalion staff comprised an aide-major and a sous-aide-major, two ensigns (*porte-drapeaux*), and two assistant-surgeons.

Each company had a captain and two subalterns, and on a peace footing four sergeants, of whom one was quartermaster-sergeant; six corporals, six lance-corporals, one drummer, one fifer, and thirty-six private sentinels, fifty-seven in all. The Grenadier companies had forty private sentinels; their officers were selected by the colonel from the whole body of officers of the regiment, and they picked their N.C.O.'s and men from all the other companies of their battalions. The N.C.O.'s and privates of the Grenadier companies received a high rate of pay, but their officers were supposed to be sufficiently compensated for their extra work and risks by their increased facilities for acquiring distinction and advancement. The Grenadiers were originally chosen from the battalion companies for their intelligence, courage, or physical strength, and not merely for their stature, as became afterwards the fashion.

The grenade-pouches and hatchets carried by the Grenadiers were laid aside about the middle of the eighteenth century, and to make up for the loss of the latter, a squad of a corporal and eight private pioneers, armed with axes, was formed in each regiment of infantry. On parade, the company of Grenadiers, divided into half-companies, was stationed on the two flanks of the line, or in front and rear of the column.

The colonel and lieutenant-colonel each owned companies in the regiment, which were commanded by brevet-captains. Companies and regiments were valuable pecuniary investments which were bought and sold like any other marketable commodities. Among the sources of profit to a captain were the "trabans" and "paye-mortes." The trabans, or drabants, were four in number in each company; they were originally the guardians of the company's cash-chest; later they became the private servants or bat-men of the captain. They attended him on parade and in the field, armed with halberts, and wearing the livery colours of the colonel of the regiment, like the drummers and fifers. Their name appears to survive in the East of Europe in the word "dorobanz," as the Roumanian infantry Militia is called.

The "paye-mortes" were men of straw, or fictitious soldiers, for whom the captain drew pay and rations as if they were existing and effective. Stipulation was made in the capitulations that there should be a certain number of paye-mortes allowed in each company *au profit du capitaine*. Trabans and paye-mortes were abolished in the Swiss regiments of the French Army in the year 1771.

The appointment of officers to the regiment was in the hands of the captains, who selected candidates to fill the vacancies in their companies subject to the approval of the colonel. Promotion went by seniority up to the rank of captain. The captains and field officers were appointed by the Colonel-General of the Swiss and Grisons, subject to the Royal sanction; the promotion to the former rank generally depended on the recommendation of the colonel. In the canton company regiments promotion went primarily by the canton to which an officer belonged, and secondarily by selection or seniority. The appointments to the battalion and regimental staff were mostly in the hands of the colonel. He promoted sergeants to fill vacancies among the ensigns, but they never rose beyond that grade. He selected lieutenants for the post of aide-major, and sub-lieutenants for that of sous-aide-major; these officers vacated their posts on promotion to captain and lieutenant, respectively. The colonel also appointed the quartermaster and his assistant by selection from the quartermaster-sergeants; but the paymaster was chosen by the captains either from among their own body or from among the lieutenants, subject to the approval of the colonel.

All the Swiss regiments were clothed in red; the officers in scarlet coats with silver lace and buttons, the men in the colour called "crab-red" by the Germans, ornamented with white braid and white metal buttons. The hem of the skirt was to be three inches from the ground when the wearer knelt. The waistcoats and knee-breeches were of white serge or linen, according to the season; white spatterdashes were worn from the 1st May to the 1st September, and black cloth ones for the rest of the year. The hats were bordered with silver lace or white braid, and the fur caps of the Grenadiers had a white metal plate in front, were garnished with silver or white cords and tassels, and backed with blue cloth. All officers wore silver gorgets.

The field officers wore epaulettes of silver bullion; the captains had them of silver fringe; and the subalterns of silver mixed with fringe of the colour of the regimental facings; the various ranks were further distinguished by wearing two or one epaulette; when only one was worn, it was always on the left shoulder.

The pioneers were dressed as Grenadiers, with the addition of white leather aprons.

The surgeon-major and his satellites were dressed in grey, with scarlet vests and breeches. The former had his hat and clothes trimmed with gold lace.

The chaplains wore blue, turned up with crimson velvet, and gold-bordered hats.

The drummers and fifers were dressed in the colours of the livery of the colonel.

In undress, officers wore a plain red frock, and a hat without lace, but with the white cockade.

Field officers and all ranks of the Fusilier companies wore the hair *en cadogan*; the officers and men of the Grenadiers wore theirs *en tresse*.

The different regiments were distinguished by the colour of their facings, as well as by the arrangement of the lace and buttons on their collars, lapels, cuffs, and pocket-flaps, which varied in all the regiments, as did the cut, some coats having rolling collars and gauntlet cuffs, others Prussian collars and straight cuffs, and so on. The collars, lapels, and cuffs were of the regimental facing colour. The Regiment Ernest had black velvet facings; Salis-Samade had lemon-yellow; Sonnenberg, sky-blue; Castellans and Steiner, royal-blue; Vigier, buff; Châteaueux, yellow; Diesbach, sky-blue with red collar; De Courten, royal-blue collar and lapels and white cuffs; Salis de Marschlinz, red collar and royal-blue lapels and cuffs; and Rheinach, white.

The colours of the regiment were of the colour of the colonel's livery, with the white Swiss cross, and his armorial bearings. Only the colour of the colonel's own company was white, with the golden lilies of France. The idea seems to have been that each chief should fly the flag of his lord; the captains that of the colonel; the colonel that of the King.

The armament was the same as that of the Gardes Suisses; but only the non-commissioned officers and the Grenadier privates wore sabres. The rank and file of the Fusilier companies had no side-arms but their bayonets. The accoutrements were buff leather pipeclayed, and the pouches black varnished leather; those of the Grenadiers had a brass grenade on the flap.

A curious old custom survived in the Swiss regiments, by which, when an officer died or was killed in action, his gorget and sword became the perquisites of the major of his regiment.

The Swiss regiments ranked with the French regiments of the Line according to the date of their formation; but the senior French regiment

present in camp or quarters always took the right of the line or the head of the column on parade. When the Gardes Françaises were present, the Gardes Suisses ranked next to them and above all the regiments of the Line; but when they were not present, the senior French regiment on the spot took precedence even of the Gardes Suisses. The principle was that the predominance of the French nation must always be asserted. In the absence of a general officer, a mixed force was commanded by the senior cavalry officer present in camp or in the field; by the senior infantry officer when in garrison.

The capitulations usually contained stipulations to the effect that the Swiss troops should not serve beyond sea or cross the Rhine. The first of these reservations was due to the natural repugnance of the Swiss nation for an unknown element; the second to the ancient political connection of Switzerland with the Holy Roman Empire, of which the Government of the Confederated Cantons was solicitous to preserve the tradition.

However, in later times neither of these provisions was strictly observed. We find a Swiss Regiment Karrer, afterwards Hallwyl, serving as a Marine corps during the Seven Years' War, and Swiss regiments embarking for Corsica and Minorca. In the Seven Years' War the Swiss regiments crossed the Rhine without scruple, as France was then the ally of the Emperor. The Bernese Regiment of Erlach (afterward Ernest) refused to march against Holland with the French Army, on the ground that it could not legally be called upon to fight against a Protestant Power; and Louis XIV. allowed its objection. This regiment, and the Zurich Regiment of Steiner were composed entirely of Protestants, and had no priest; the Valaisan Regiment de Courten was the only one which consisted only of Catholics, and it had no pastor. In all the other regiments the religions were mixed. The capitulations of the cantons with France always stipulate that the Protestant Swiss soldiers shall have full liberty of worship in France; and even after the revocation of the Edict of Nantes this right was scrupulously respected. Louis XIV. ordered that commandants and town majors of garrisons should place suitable buildings at the disposal of the Swiss for their Protestant worship; but all His Majesty's subjects were strictly prohibited from attending the same. He also forbade any priest to approach or meddle with any Swiss Protestant soldier in a station or civil hospital.

When the Host was carried in procession past a French regiment on parade, it was the custom for the regiment to open the ranks and present arms; the officers and men took off their hats and hung them on the hilt of their side-arms, and the soldiers all knelt until the Host had passed by. The Swiss Protestant soldiers were exempted from the kneeling part of the performance. When a Swiss officer or soldier met the Host in the street, it was allowable for him to enter any shop or open private house, and remain there till it had passed by; and the owner of such shop or house was not to hinder him doing so. But if he could

not avoid meeting the Host, he was to stand at attention, with his hat in his hand, till it had passed; all this was regulated by Royal ordinance.

Catholic Swiss soldiers disabled by wounds or superannuated, were admitted to the *Hôtel des Invalides*, at Paris; but heretics not being eligible for that institution, Protestant soldiers similarly circumstanced were granted a money pension.

The pay of all ranks in the Swiss regiments was higher than it was for the French. The superior officers were paid at a proportionately higher rate than is the custom nowadays, the pay of a captain being four times that of a lieutenant. It was laid down that two-thirds of the men in each company must be Swiss by birth; the remaining third might be Germans, Poles, or Hungarians, but not Alsatians, or any other subjects of the King of France. In case of a reduction, all foreigners were to be got rid of first, before any Swiss were disbanded; and as long as a Swiss recruit of the minimum regulation height could be obtained, a tall German was not to be enlisted in preference to him. The Swiss, though generally short of stature, are stoutly built, and the French brigade-majors had to allow extra space in the alignment for the Swiss battalions, as their men were more broad-shouldered than the French, and took up more room in the ranks. The parade movements and exercises were the same as used in the French infantry, invented or perfected by the celebrated M. Martinet, but the words of command were given in German.

The Swiss soldiers were not amenable to the French civil or criminal law, but were tried and judged by their own officers, according to the Swiss laws; the "grand judge," who was an official on the staff of every regiment, combining the functions of a civil magistrate with those of a military judge-advocate. The code of military law was framed on an ancient German model, and was much more severe than that in use in the French Army; it contained such antiquated and barbarous punishments as cutting out the tongue for blasphemy, amputating the hand for drawing a weapon on a superior officer, etc.; these were only expunged from the code towards the end of the eighteenth century. The "gassen-laufen," or "running the gauntlet," was an ordinary punishment; blows with a stick were administered in the fashion which till recently prevailed in the Austrian Army, though in the French regiments there was no corporal punishment. Minor punishments were imprisonment and extra guards.

Courts-martial were composed of subalterns and non-commissioned officers, presided over by a captain, who, like the English superintending officer on a native Indian court-martial, conducted the proceedings, but had no vote, and no voice in the finding or sentence. These were submitted to a court of revision, composed of captains, who could confirm or annul the finding, and remit or commute the sentence, but could not enhance it. The colonel had no power of revision. French officers were not allowed to sit on Swiss courts-martial; even the French officers of the company of the *Cent Suisses* could not sit on a court-martial on

their own soldiers, and Swiss officers were brought in from the Compagnie-Générale of the Swiss Guards to make up the regulation number of members.

The soldiers were all enlisted voluntarily for a specified term of years, with option of re-engagement, and pension from the French Crown after long service or disablement.

The civil authorities in Switzerland used to get rid of *mauvais sujets* by using a little gentle persuasion to induce them to enlist in a regiment *à l'étranger*.

The loyalty and discipline of the Swiss troops made them specially obnoxious to the leaders and supporters of the Revolution in France. In 1789 the King assembled the regiments of Salis-Samade, Châteauvieux, and Diesbach, at Versailles, along with some German regiments, to overawe the insurgent capital; but he had not courage to order the troops to act, and the idle menace of their presence only increased the popular tumult. When the Bastille was threatened, a weak company of the Regiment de Salis-Samade was sent to garrison it, when a battalion would have been none too many. After the capture of that fortress, the Swiss regiments were sent away from Paris in the vain attempt to conciliate the popular party.

The Regiment of Châteauvieux had become affected by the insubordinate spirit which prevailed among the French troops, and it led the mutiny at Nancy. In 1792, the Bernese Regiment of Ernest, which was in garrison at Aix, was assailed by the revolutionary mob and National Guards, and constrained to lay down its arms; the Government of Berne, indignant at this outrage, recalled the regiment from France. In June of the same year, a decree of the National Assembly dissolved the company of the Cent Suisses. In August, the massacre of the Swiss Guards at the Tuileries brought matters to a climax; ten days afterwards the National Assembly decreed the dissolution and disbandment of all the Swiss regiments, and repudiated the arrears due on their capitulations, which amounted to a considerable sum. All these arrears were, however, honourably discharged by Louis XVIII. after his restoration in 1814. The French authorities used every means in their power to induce the Swiss soldiers to enter the Republican Army, and to a great extent they succeeded, though their new conditions of service do not seem to have always satisfied the Swiss soldiers, for we find one battalion of the men so transferred deserting in Corsica, and another going over to the Royalists in La Vendée.

The Regiments of De Courten and of the Jeune Salis sent most of their men to recruit the ranks of their fellow-countrymen serving in Spain and Piedmont; others joined the French *émigré* Army on the Rhine, or enlisted in the service of Austria and other German States. The Bernese Regiment of Ernest, the senior Swiss Line regiment in the French service, was for a short time retained in the canton, but it was soon hired out to Great Britain, who was in need of troops to carry on the war against the French Republic. The regiment followed the British

flag for twenty years under the name of the Regiment de Watteville, and terminated an eventful and honourable career of a century-and-a-half in the general disarmament that followed upon Waterloo.

SERVICE OF HOLLAND.

The Dutch Republic early sought for aid in men from the Swiss Protestant cantons to carry on its long and desperate struggle with Spain, but the influence of the Catholic party in Switzerland and in the Empire prevented the aid being granted. During the seventeenth century the application was more than once renewed, but the opposition of the French Ambassador in Switzerland, acting under instructions from Louis XIV., prevented its being acceded to. The revocation of the Edict of Nantes, however, completely alienated the Protestant cantons from the cause of France, and from this time forward they had no scruple in furnishing aid to her avowed enemies.

The first levy of troops for the Dutch service was made in 1676, when the cantons of Berne and Zurich raised between them a regiment of three battalions, numbering 2,400 men, commanded by Colonel de Watteville, of Berne. The capitulation was for ten years, and the regiment was accordingly disbanded in 1686.

William III., when planning the coalition against France, was exceedingly anxious to stiffen the Dutch Army by an admixture of Swiss troops, and in 1692 and the following years his agents in Switzerland concluded a number of capitulations with the cantons for a considerable levy of troops; and from this time forward the States-General of Holland seldom had less than 10,000 Swiss in their pay; and sometimes as many as 20,000.

William III. at the same time concluded an arrangement for the supply of two Swiss regiments of 2,000 men each for the service of England, but this arrangement was never carried out; probably, the sanction of Parliament was lacking for the necessary funds. King William set great store by his Swiss troops, and instituted an office of colonel-general for them, in imitation of the colonel-general of the Swiss and Grisons in the French service; he conferred this rank on his favourite, Arnold Keppel, Earl of Albemarle, Viscount Bury, Baron of Keppel and Achesfort, in Holland, K.G., Captain of the First Troop of Life Guards in England; General to the Dutch Army; and Colonel of a Swiss regiment. He held the office from 1698 to his death in 1718. The King at the same time laid down the following regulations for the promotion of officers in the Swiss regiments:—

1. When a regiment becomes vacant, the colonel-general will propose to His Britannic Majesty two officers, of whom one shall be the lieutenant-colonel of the said regiment, and the other an officer of merit, either the major or a captain of the same regiment; His Majesty will choose one of these two.
2. With regard to the places of lieutenant-colonels and of majors which may become vacant, the colonel-general will propose

three officers to His Majesty, one the most senior, and two others whom he may deem most worthy; His Majesty will choose one of the three.

3. On a company becoming vacant, the colonel will propose to the colonel-general the names of the two most senior captain-lieutenants of the regiment, and of a third the most worthy. The colonel-general will make his choice, which must be approved by His Majesty.
4. His Britannic Majesty will furnish all colonels, lieut.-colonels, majors, and captains with commissions, ratified by the States-General under their seals and signed by the colonel-general.
5. The captains will have the choice of the ensigns and the nomination of the other officers of their companies, observing the order of seniority except for some good reason, which must be reported by the captain to the colonel-general and approved by him. The nomination of all these officers will be submitted by the captain to the colonel and approved by him, after which the colonel will submit their names to the colonel-general, who will forward their commissions.
6. Applications for furlough and leave of officers will be approved by the colonel and forwarded by him to the colonel-general who will dispose of them.
7. The colonel-general alone can give an officer permission to quit the Army or to absent himself from the dominions of the States-General for a longer period than eight days.
8. Colonels or officers commanding regiments will furnish the colonel-general every month with a present state of their corps.
9. Applications from officers to retire from the service will be submitted by their colonels to the colonel-general, who will either refuse or accord permission as he thinks fit.
10. When the colonel-general is present with the troops, a Swiss company with the colour will mount guard over his tent or at his lodging, besides the guard which he may have as a general officer.
11. The colonel-general may review the Swiss regiments whenever he deems it expedient to do so.
12. The Swiss regiments present with the Army shall pay the same honours to the colonel-general as they pay to the general commanding the Army.
13. The Swiss regiments in garrison shall pay the same honours to the colonel-general as they pay to the field-marshal.
14. The colonel-general shall have twelve Swiss halberdiers in attendance at his quarters.

(Signed) WILLIAM REX,

Dated 22nd November, 1698.

The Swiss regiments fought through all Marlborough's campaigns, and distinguished themselves at the battles of Blenheim and Ramillies. At Oudenarde, five Swiss regiments crossed the Scheldt, and falling on the left flank of the French, put them into irretrievable confusion. At Malplaquet six Swiss regiments shared in the storming of the French entrenchments, losing more than two-thirds of their officers, and half their men put *hors de combat*. The regiment of Metrail had all its officers killed or wounded, and was brought out of action by an ensign. The regiment of Albemarle suffered nearly as much, and found itself commanded by a lieutenant after the battle. All Switzerland was plunged into mourning at the news of this doubtful and murderous day, for the Swiss regiments in the French Army also suffered heavy loss.

In 1715 six battalions of Swiss were sent to Scotland by the States-General of Holland to aid in suppressing the rebellion of the Earl of Mar, but they did not arrive till the Battle of Sheriffmuir was over. They remained in Scotland until the country was pacified, and then returned to Holland.

Three regiments of Swiss were at the Battle of Fontenoy in 1745, where, much to their disgust, they were kept in absolute inaction by the orders of the Dutch general, whose apathy or pusillanimity was the cause of the loss of the battle.

At the outbreak of the French Revolution the following Swiss regiments were in the Dutch service:—

The Regiment of Swiss Guards	-	-	Raised in 1748
The Regiment of Sturler	-	-	„ 1693
The Regiment of May	-	-	„ 1696
The Regiment of Schmidt	-	-	„ 1695
The Regiment of Hirzel	-	-	„ 1701
The Regiment of Stokar	-	-	„ 1748
The Neuchatel Regiment of De Meuron	-	-	„ 1781

The last of these regiments was raised for the service of the Dutch East India Company and was employed in garrisoning the possessions of Holland in the Eastern seas. It was distinguished by its yellow facings, while all the Swiss regiments in the service of the States-General wore red facings.

The regiment of foot-guards was stationed at the Hague, to furnish the guards for the person and palace of the Stadtholder. The regiment was numerically weak, mustering only 800 of all ranks, but the men were picked for their physique and appearance. They were recruited from the Protestant cantons and from the Grisons. The Canton of Berne furnished three companies; the command of two of these was reserved for burgesses of Berne; that of the third was conferred alternately on a burges of Berne or on a citizen of the Vaud, or of some other canton subject to Berne. The regiment was divided into two battalions; each battalion had four companies, and a fifth company of Grenadiers, which was composed of two N.C.O.'s and ten private Grenadiers, picked from each battalion company. These men con-

tinued to be borne on the strength of their battalion companies and were mustered and paid in them; but for drill and discipline they were under their Grenadier officers, who were selected by the colonel from the whole body of officers of the regiment.

The regimental staff consisted of the colonel, a colonel second-in-command, two lieut.-colonels, two majors, two adjutants, a quartermaster, a chaplain, a surgeon-major, a provost-major, and a drum-major. Each company had a captain and a second-captain, two lieutenants and an ensign, five sergeants, four corporals, three lance-corporals, three drummers, and one fifer, a company clerk, a surgeon-apprentice, a musician, four trabans, "a paye-morte for the commissary, and another for the solicitor."

The company was divided into six squads, each commanded by a corporal or lance-corporal. Each company of Fusiliers mustered 100 of all ranks, including the Grenadiers, and the companies of Grenadiers sixty of all ranks.

The Swiss regiments of the Line took precedence according to the date of rank of their proprietary colonels; their order of precedence consequently varied from time to time. In the list given above the regiments have been placed in the order of their formation; the Regiment of May, which was raised a year later than the Regiment of Schmidt, has been placed above it because it contained the remains of an older regiment, broken up and incorporated with it after the Peace of Ryswick. The Regiments of Sturler and May belonged exclusively to the canton of Berne, that of Schmidt was a Grison regiment, that of Hirzel, formerly the Regiment of Albemarle, was at first mixed, but was afterwards recruited only from the canton of Zurich. That of Stokar was recruited in Schaffhausen, Glarus, Appenzell, and St. Gall.

The regiments were composed of three battalions on a war-footing, and two battalions on a peace-footing. Each battalion had six companies, and a seventh company of Grenadiers, formed from the battalion companies in the same manner as the companies of Grenadiers in the regiment of foot-guards. Each company mustered 150 of all ranks, including the Grenadiers; and the Grenadier companies, 75 of all ranks.

When the proprietary colonel was a general officer, the regiment had a colonel-en-second to command it. Each regiment had also a lieut.-colonel, two majors, and two adjutants (one for each battalion), a chaplain, a quartermaster, a surgeon-major, a provost-major, and six provosts. The field officers all had companies in the regiment, which were commanded by captain-lieutenants. All the regiments wore blue coats lined and faced with scarlet, with silver lace and buttons. The Guards were distinguished by bars of silver braid on the scarlet lapels. As undress, the officers of the foot-guards wore a coat of the same cut and colour but with less silver lace upon it. The waistcoats and knee-breeches were white (except in the regiment of Stokar, which was dressed in blue throughout, coat, vest, and breeches). White spatterdashes were worn in summer and black in winter, with rows of steel buttons. The hats were trimmed with silver lace or white braid, and had tassels and tufts

(*ganses et houppes*) of orange silk mixed with silver for the officers, plain orange for the men; the sword knots were of orange mixed with silver. The different regiments were distinguished by the cut of their collars and cuffs, and by the arrangement of the lace, trimmings, and buttons, which varied in all the regiments. The officers wore silver epaulettes and gorgets, and orange sashes girt round the waist above the vest. N.C.O.'s wore epaulettes of white or orange, the colours varying in different regiments. The Grenadiers wore bearskin caps garnished with scarlet cloth and silver or white cords and tassels.

The colonel's company in the regiment of foot-guards had a white colour, emblazoned with the arms of the Prince of Orange, and the motto *Tanta est fiducia gentis*, which appears to have been copied from the motto of the company of the Hundred Swiss of the French King's household. The colours of the other companies bore the white cross of Switzerland, with orange, blue, and white flames in the four quarters.

The Regiments of Stürler and of May flew the colours of the Canton of Berne. In the other regiments the colours were the livery of the proprietary colonel. All the colours bore the Swiss cross, and those of the colonel's companies had the device of seven arrows bound together, signifying the seven united provinces, which was the Dutch national badge. Other devices, and French and Latin mottoes were also borne in the colours of the regiments.

The arms and accoutrements were the same as in the Swiss regiments in the service of France, with the exception that in the Dutch Swiss regiments all the soldiers of the battalion companies were armed with a sabre, called "*palläsch*," smaller than that carried by the N.C.O.'s and Grenadiers.

The laws and custom of the Swiss regiments in the service of Holland were the same as those of their regiments in the French and other Armies in which they were accustomed to serve, and have already been noticed.

When the French Republicans over-ran Holland and changed the form of government, the Swiss regiments shared the fate of those in the service of France, and were all disbanded.

The Regiment de Meuron was raised to defend the Dutch Colonies in the East against the attacks of the English, and by the irony of fortune it entered the service of the very Power it was intended to oppose. The Comte de Meuron was originally a subaltern in the Swiss Marine Regiment of Hallwyll in the French service, and fought against the English in the Seven Years' War. At its conclusion the regiment was disbanded, but the Count was transferred to the Swiss Guards, in which he rose to be captain, with the rank of colonel in the Army. When war broke out between Holland and England, during the War of American Independence, the Dutch East India Company applied to the French Government for the services of an experienced officer to raise a Swiss regiment for the defence of their possessions against the English; and the Count de

Meuron was placed at their orders. He raised a regiment in his native Canton of Neuchatel on a capitulation which he concluded with the Dutch Company. One of the stipulations on the part of the Company was that the men should all be Protestants. The Count marched his regiment to Brest, where it embarked for the Cape of Good Hope. It garrisoned that Colony and Ceylon alternately, and served against the English on the Coromandel coast. It was stationed in Ceylon when the French Republicans over-ran Holland and over-turned the Stadtholder's government; and the English invaded Ceylon in consequence. Two companies of De Meuron's Regiment were taken prisoners by them at Trincomalee. The affairs of the Dutch East India Company were in irretreivable confusion, their troops were unpaid, and the Prince of Orange, who had taken refuge in England, wrote out releasing the Regiment de Meuron from its oath of allegiance. The regiment accordingly entered the British service; the Count de Meuron arranged a capitulation with the authorities in India, but certain articles, providing for the tenure of companies by field officers, the use of the Swiss military code, and of the Swiss flag, were taken exception to by the British War Office; and the Count de Meuron in consequence proceeded to London, where a fresh capitulation was arranged on terms satisfactory to all parties, the Anglo-Indian scale of pay and allowances quite reconciling the field officers to the loss of their companies. The Count de Meuron retained the colonelcy of the regiment, and received general rank in the British Army. The Regiment de Meuron remained in the English service for twenty years, was employed in India, on the Mediterranean stations, and in Canada, and was finally disbanded in the great reductions that followed on the conclusion of the general peace after Waterloo.

SERVICE OF SPAIN.

Charles I., King of Spain, better known as the Emperor Charles V., had many Swiss bands in his Army, but they were in the Imperial, not in the Spanish, Royal Service. The first levy of troops accorded by Switzerland to Spain was made in 1574, for the Spanish Army of Philip II., in the Netherlands, which was employed against the revolted Dutch. It consisted of a regiment of 4,000 men, divided into ten "ensigns," each of 400 men. The regiment was commanded by Walter de Roll, who, affronted by Castilian pride, had a violent dispute with Don Louis de Requesens, the Spanish Governor, which ended in the services of the regiment being dispensed with. After this, several other Swiss regiments were raised for the service of Spain in the Netherlands and the Milanese.

These regiments generally consisted of 4,000 men, divided into nine companies, and a tenth company of "enfants perdus," which was always of superior numerical strength to the others. The captains of the companies of "enfants perdus" ranked next to the colonel, commanded the regiment in his absence, and succeeded him on his death. The captains of the other companies had various offices divided among them,

one being captain of the Arquebusiers, another of the Halberdiers, another of the Pikemen, another of the Spies and Guides, and another being baggage-master. There was no regimental staff, the captains taking their orders direct from the colonel. The Swiss Infantry retained the use of the halberd long after it had been given up in the other Armies of Europe, and their regiments continued to be composed of musketeers, halberdiers, and pikemen.

In 1683, the Baron of Beroldinguen raised a regiment of 2,400 men in the Canton of Uri, divided into three battalions of four companies each. This was the first Swiss regiment organised in this fashion, and in which the "enfants perdus" were replaced by a company of Grenadiers. These Grenadiers and the Musketeers of the regiment were for the first time armed with the bayonet, which had been introduced into use in the French Infantry by M. Martinet in 1669. The halberdiers were still retained, and were posted with the musketeers in the centre of the battalion, the Grenadiers and pikemen being stationed on the flanks. The Swiss regiments in the service of Spain were principally employed in Italy, for the defence of the Spanish possessions there, and it was not until 1664 that two Swiss regiments were brought by sea to Spain. The capitulations made with the cantons stipulated for the free exercise of their religion by the Protestant soldiers, as was the case in France; but the bigotry of the Spanish priesthood was so hostile to this concession that it several times happened that the King found himself constrained to dismiss all the Protestant officers and soldiers to their homes, reforming the regiments with Catholics only. On these occasions His Most Catholic Majesty was graciously pleased to offer to retain these officers and men in his service on condition that they would abjure their religion, a condition which they always indignantly refused. Their invariable answer to the Royal invitation was, *Wir will in den Religion unsern Vatern leben und sterben.*

The capitulations between Spain and the cantons were made for a term of years, and the Swiss regiments were at first always dismissed on its conclusion. It was not till 1743 that Swiss regiments assumed a permanent place in the Spanish Army. In that year four regiments were raised which continued in the service of Spain until the wars of the French Revolution, at which time they were known as the Regiments of Kruter, Thurn, Ehrler, and Betschardt, respectively, after the names of their proprietary colonels.

Each regiment was 1,200 strong on a peace footing, and was divided into two battalions of four companies each, and a fifth Grenadier company, formed from the battalion companies in the same fashion as in the service of Holland.

The field officers were a colonel, lieutenant-colonel, and major, the two latter commanding the battalions. Each battalion had a lieutenant as aide-major, or adjutant, who received a lump sum annually as staff pay, in addition to his pay as lieutenant. Another lieutenant acted as quartermaster of the regiment, and received as remuneration an annual

present from the captains. The officers of the Grenadier companies were selected by the colonel, and received a third more pay. Their sergeants were also chosen by the colonel, and received double pay. The corporals and privates were picked by the Grenadier captains and got a higher rate of pay than those of the battalion companies. The Grenadier companies mustered sixty-four of all ranks, and the Fusilier companies 150, including the Grenadiers.

Up to the year 1707, the Swiss soldiers in the Spanish service wore red coats and hats trimmed with silver lace, but these were the only uniform articles of their equipment; after that time regular uniform began to be worn, and the colour was changed to blue. The Swiss regiments in the Spanish Army were dressed very similarly to those in the service of Holland, in blue coats, with silver lace and buttons, white vests, breeches, and gaiters.

The facings of the first three regiments were scarlet; those of Betschardt's Regiment were yellow. The cockades and tufts in the hats, the sword-knots, and the epaulettes of the sergeants were purple; those of the officers were purple mixed with silver. The Grenadiers had fur caps, garnished with cloth, of the colour of the facings of the regiment, and silver or white cords and tassels.

The rank of the officers was distinguished by one or two epaulettes, and by rings of silver lace on their cuffs, like the officers of the British Navy nowadays. The officers of all the companies were armed with fusils and bayonets, and were equipped with pouches of blue velvet, trimmed with silver. The N.C.O.'s and rank and file were armed and accoutred as in the French regiments. The Grenadiers had a badge of a bursting grenade in white metal on the flap of their pouches.

The colours showed the red cross of Burgundy, instead of the white Swiss cross. The colour of the colonel's company was white, with the Royal arms of Spain; those of the other companies were of the colour of their colonel's livery.

The drummers, fifers, and musicians were clothed in the colonel's livery.

The famous Spanish Infantry, once the first in Europe, had quite lost its old reputation, and the Swiss, Walloon, and Irish regiments formed the pick of the Spanish Army, and bore the brunt of all the battles and sieges in the continual wars waged by France, Spain, and Austria for supremacy in the Italian peninsula. The Swiss also served in Africa against the Turks and Moors, and took part in General O'Reilly's unfortunate expedition against Algiers in 1775. When Napoleon assumed the reins of government in Spain and placed his brother Joseph on the throne, he incorporated these Swiss regiments with the French Army; two of the regiments testified their resentment at this arbitrary treatment by going over to the Spaniards at Baylen, on that ominous day of disaster to the hitherto invincible arms of Napoleon.

SERVICE OF NAPLES.

When the Kingdom of Naples was conferred on the Infant Don Carlos in 1734, the new King employed Swiss officers in the Spanish service in Italy to raise three regiments of Swiss Infantry for him, one of which he made a Corps of Guards; and subsequently the Swiss Regiment Wirz, in the service of Spain, which had been long stationed in Italy, was transferred to that of Naples. The capitulations for these regiments were made by the King with the colonels, who obtained the sanction of the Swiss authorities for recruiting in the cantons. Each regiment had always one or more officers on recruiting service in Switzerland, as was also the practice of the Swiss regiments in the service of Spain. Only Roman Catholics were enlisted; two-thirds of the men must be Swiss, the other third might be made up of Catholic Germans. The regiments had numbers, but they were always called after the names or titles of their colonels, which never varied, for the colonelcies were hereditary in the families of the officers who first raised the regiment; and in case of the failure of direct heirs, the colonelcy went to the next-of-kin. The Valaisan Regiment in the French service was hereditary in the family of De Courten, and the colonelcies of the Regiments of the Vieux and the Jeune Salis were also usually held by the members of the different branches of the De Salis family.

The Swiss regiments in Naples were named as follows:—

The Regiment of Swiss Guards	-	-	Raised in 1734
The Regiment of Wirz	-	-	„ 1719
The Regiment of Jauch	-	-	„ 1734
The Regiment of Tschudi	-	-	„ 1734

The proprietary colonelcy of the Regiment of Swiss Guards, as well as that of the fourth Swiss regiment, was hereditary in the noble family of the Barons of Tschudi, in the Canton of Glarus; they were sometimes held by the same individual, in which case, or in case of the proprietary colonel being under age, a colonel-commandant was appointed to command the regiment. Some of the companies in the Regiment of Guards were also hereditary in certain families, and were commanded by captains-commandant in the absence of their proprietary captains.

The Swiss Guards ranked as the second regiment of infantry, coming next to the Regiment of Neapolitan Guards.

Like the Regiment of Swiss Guards in Holland, all the captains of the Swiss Guards in Naples ranked as lieutenant-colonels, and all the officers had a step of Army rank higher than their regimental one. The sergeants of the Guards Regiment relieved lieutenants of the Line regiments on guard or picquet.

The regiment was formed in two battalions of seven companies each, six of Fusiliers and one of Grenadiers. The Grenadier companies were permanent units; their ranks were filled as usual by the selection of the bravest, smartest, and finest officers and men from the Fusilier companies. Each company mustered 100 of all ranks, and the whole regiment between 1,400 and 1,500.

As the regiment was recruited by its colonel, and had not the recruits furnished for it by the cantons, four of its lieutenants, who were seconded in the regiment, were kept permanently on recruiting service in Switzerland. These were included in the "plana major," as the regimental staff was called, as also were ten "paye-mortes," who were returned as trabans or personal guards of the colonel and the lieutenant-colonel, six for the first, and four for the second. Each company had two "paye-mortes" entered in its roll as trabans, *au profit du capitaine*.

In the Line regiments, the companies were fewer but stronger. They also were of two battalions, each battalion having three companies of Fusiliers, and one of Grenadiers. The former were 200 strong, the latter only half that number, while in the Guards Regiment the Fusilier and Grenadier companies were of equal strength. The total muster of all ranks in the Line regiments was over 1,400. The Regiment of Wirz was raised in 1719 from the Regiments of Stokar and Muller, raised for the service of the Signoria of Venice for Turkish wars, and disbanded at Venice in 1719.

The new regiment was called Niederost, after its colonel, and was long known by that name in the Spanish service, in which it greatly distinguished itself on many occasions, particularly at the re-capture of Oran from the Algerines. It was long employed in Italy and in the service of the King of the Two Sicilies, before it was finally transferred to his Army from that of Spain in 1748.

In 1754 a novel method of promotion was instituted in the three Swiss regiments of the Line, the officers of each regiment being placed on one list for promotion up to the rank of lieutenant-colonel; previously the promotion had gone separately in each company.

The uniform of all the four Swiss regiments was a scarlet coat with royal-blue lining and facings, blue waistcoat and knee-breeches, and white gaiters. The lace and buttons were silver. The cockades were red, the cords and tassels of the hats and the sword-knots of red silk, mixed with silver.

The Regiment of Guards had three distinct uniforms, for court, parade, and field service. In court dress, the coat was laced on all the seams with silver; for parade it was trimmed with silver lace, and had bars of silver braid on the lapels and the vest. The field service uniform was the same as that of the other regiments, except in the badges and buttons, and in the arrangement of the latter and of the lace and braid trimming of the button-holes, which formed the only distinctive differences in the uniform of the three Line regiments.

The rank of the officers was distinguished by the fashion and number of their silver epaulettes, and by rings of lace on the cuffs, as in the Spanish service. They were armed only with their swords. The sergeants of the Guards had their pouches covered with black velvet embroidered with silver.

The colours of the Guards had a gilt fleur-de-lis for a spear-head; the colour of the colonel's company was white, studded with golden

feurs-de-lis, with the Royal Arms in the centre; the other colours had red, yellow, black, and white flames in the four quarters, separated by the white Swiss cross.

The colours of the Line regiments were of the colour of the Royal livery, quartered with that of the colonel, with the same device of coloured flames and the Swiss' cross; but the Regiment of Wirz retained in its colours the red cross of Burgundy, which it had borne in the Spanish Army. The flames in its flag were red, blue, black, and white; those in the colours of the Regiment of Jauch were of the same colours, with dark grey in addition; and those in the colours of the Regiment Tschudi were red, blue, black, white, green, and yellow.

The colour-staves of the Guards and of the colonel's companies in the Line regiments were covered with red velvet; those of the other companies with blue velvet.

SERVICE OF SARDINIA.

The first levy of troops made in Switzerland for the service of the Grand Duke of Savoy was in 1593, when the Cantons of Lucerne, Uri, Schweiz, and Unterwalden between them furnished three regiments, each 2,000 strong, to Charles Emmanuel I. Each regiment contained seven companies of 250 men each, and an eighth of "enfants perdus," mustering 550 men.

In 1617, the same Prince hired from the Canton of Berne, the ancient and triumphant opponent of his predecessors in the religious wars, a regiment of 3,000 men, divided into eight companies of 325 men each, and a ninth company of 400 "enfants perdus." From this time forward he and his successors were served by a succession of Swiss regiments hired for a term, and disbanded on its expiration.

Colonel Oberkän, of Zurich, who commanded a Swiss regiment in the French service, being disgusted by the anti-Protestant policy of Louis XIV., resigned his commission and entered the service of William III. of England, who commissioned him to raise a Swiss regiment to be employed in Piedmont against the French, and to be paid by England. Accordingly in 1691, Colonel Oberkan raised a single-battalion regiment of four companies of 200 men each, and commanded it in the Army of the Duke of Savoy until his death, when it was incorporated with the Swiss Regiment of Sacconai, raised for the service of Holland.

In 1748 there were six Swiss regiments, aggregating fifteen battalions and 10,000 men in the service of the King of Sardinia. After the Peace of Aix-la-Chapelle, these regiments were not recruited, and as the cadres diminished they were doubled up together till only two regiments remained. These were:—

The Valaisan Regiment of De Courten Raised in 1703

The Bernese Regiment of Roche	-	"	1733
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There was also a company of a hundred Swiss halberdiers, employed as a palace guard, raised from the first levy of Swiss soldiers made for

the Dukes of Savoy in 1593. The officers of the regiment were all general officers, and wore the uniform of their Army rank when on duty with the company, carrying as their badge of office an ebony staff, mounted with silver. The men were dressed in scarlet coats, with royal-blue waistcoats and breeches, and silver lace and buttons; the stockings were white in summer, blue in winter; the hats were laced with silver, and the sergeants wore blue plumes in them.

This company was made into a company of gendarmerie by the French Republicans when they conquered Piedmont, and was finally disbanded in 1802.

The two Swiss regiments of infantry were formed in three battalions of four companies each. The strength of the company was 117 of all ranks, and that of the regiment between 1,400 and 1,500. The twelve companies of the regiment furnished two companies of Grenadiers and a detachment of artillery, each company giving its quota. The Grenadier officers and sergeants, and the gunners, were selected by the colonel, the Grenadier corporals and privates by their captains.

The regimental staff included twenty officers and sub-officers, among whom were a Catholic chaplain for the Valaisan, and a Protestant chaplain for the Bernese Regiment; the men of the former being all Catholics, and of the latter all Protestants.

Six light field guns were attached to each regiment, served by an artillery detachment of one sergeant, two corporals, two lance-corporals, and twenty privates from each battalion.

The Valaisan Regiment was raised at the commencement of the War of the Spanish Succession, and during that war was paid by Queen Anne of England, whence it was for long called "the Queen's Regiment."

It afterwards became famous as the Regiment Kalbermatten. It was attached to the Canton of the Valais, and two-thirds of its field officers, and eight out of its twelve captains were required to be citizens of the canton. Similarly in the Bernese Regiment, eight companies were reserved for burgesses of Berne, while the other four might be commanded by natives of other cantons subject to Berne.

These regiments were dressed in blue, with silver lace and buttons, and white waistcoats and breeches, like those in Holland and Spain; but the gaiters were black.

The artillery detachment had blue vests and breeches.

The cords and tassels of the hats, and the sword-knots were blue and silver, and the officers wore sashes of blue and gold stripes, by the relative richness of which their rank was denoted, as well as by the embroidery on their sleeves.

The Grenadiers were distinguished by a vandyke pattern of lace trimming on their hats and coats.

The Valaisan Regiment had yellow facings, and the Bernese Regiment orange; the sleeved white waistcoats were faced with these colours, and were worn as a summer uniform for drill and duty, the cloth coats being reserved for dress parades.

These regiments passed into the service of the French Republic after the conquest of Piedmont by its armies, with the approbation of the Helvetic Grand Council. They were re-christened "Helvetic Legions of Italy" in the Republican jargon, and served in General Joubert's Army against the Austrians and Russians under Souvaroff. They were almost destroyed in the battles of Verona and Magnano, and the remnant were made prisoners in the capitulation of Mantua on the 30th July, 1799.

SERVICE OF AUSTRIA.

Though the Swiss cantons originally owed feudal service to the Empire, and their levies first followed the Imperial eagles to foreign wars, yet during almost the whole of the sixteenth and seventeenth centuries they afforded no military aid to their ancient suzerain; the Emperor always demanding as a right what the Confederation declined to grant except as a favour, neither party would accept or afford aid except on conditions that were inadmissible by the other. During the Thirty Years' War, the cantons remained neutral; Gustavus Adolphus sent agents to request a levy of men, but Berne and Zurich refused it, alleging their obligations to the Empire; the authorities, however, closed their eyes to the recruiting of soldiers by the Swedish agents, and two Swiss regiments were thus raised, which joined the King during the lager of Nuremberg, and were after his death almost totally destroyed in the unfortunate battle of Nordlingen.

The first Swiss regiment for the Imperial service was raised in 1691 on a capitulation between the Emperor and the Cantons of Berne, Zurich, Schaffhausen, and Appenzell, and was called after its colonel, von Burkli, of Zurich, afterwards a general field-marshal in the Austrian service. The officers and men were mostly, if not altogether, Protestants. The regiment was 1,700 strong, formed in two battalions, each of five companies; the strength of the company being 170 of all ranks.

The regimental staff of Burkli's Regiment consisted of a colonel, lieutenant-colonel, and major, a quartermaster, two sergeant-majors (one for each battalion), a chaplain, a surgeon-major, a drum-major, and a provost-major.

Each company had five officers: a captain, a captain-lieutenant, a lieutenant, a sub-lieutenant, and an ensign; nineteen N.C.O.'s, viz., a feld-webel, or company-sergeant-major, three sergeants, a quartermaster-sergeant, a fencing instructor, and a standard bearer, all three ranking as sergeants; six corporals, and six anspessades; a surgeon, a secretary, four drummers, one fifer, and a sutler; sixteen Grenadiers, twenty-four Halberdiers, and ninety-eight Musketeers.

On parade and in the field, all the Grenadiers of the battalion were formed in one company, commanded by the senior captain-lieutenant, and the Halberdiers in another company, commanded by the junior captain.

The uniform of the regiment is described in the capitulation; it was a French-grey coat with silver lace and buttons, with scarlet waist-coat, breeches, and stockings.

The same, or a very similar, uniform continued to be worn by all the regiments subsequently raised in Switzerland for the Imperial service; the colour of the coats being either French-grey or dark grey.

The Regiment of Burkli was employed to garrison the Imperial cities in Germany, and was disbanded after the Peace of Ryswick, in 1698.

In 1702 two Swiss regiments were raised for the service of the Emperor in view of the outbreak of war on the question of the Spanish succession. These regiments had no Halberdiers, and the rank and file were all armed with muskets and bayonets. The Grenadiers wore bearskin caps for the first time. These regiments were disbanded after the Peace of Utrecht, in 1713. Other regiments were raised from time to time, as occasion demanded, but Austria never had many Swiss troops in her service at one time, nor were there any Swiss regiments on the permanent establishment of the Imperial Army. The German troops were equal to the Swiss in discipline and steadiness, two qualities which were deficient in the Latin nations, who were the chief employers of mercenary Swiss talent.

SERVICE OF PRUSSIA.

Frederick, the third Elector of Brandenburg, and first King of Prussia, sovereign Prince of Neuchatel and Vallengin, raised a company of Swiss Halberdiers for his personal guard by capitulation with the Protestant cantons in 1696. This Prince had magnificent ideas and expensive tastes, and tried to make the Court of Berlin a miniature copy of the splendours of Versailles, so he established this company of 125 officers and men in imitation of the Hundred Swiss of the French King's bodyguard. They wore a similar court livery of antique mode, of blue slashed with yellow. The frugal Frederick William I., whose tastes were simpler and habits ruder than those of his courtly father, disbanded this company on his succession to the throne in 1713.

SERVICE OF VENICE.

The Republic of Venice applied to the Swiss cantons for aid in men when its territories were invaded by the Confederates of Cambray; but the cantons, not wishing to risk their soldiers against all Europe in arms, civilly declined their overtures. The first levy of troops for the service of Venice was made in 1573 by Melchior Lussy, of Unterwalden, who raised a regiment of 3,000 men, which served in Dalmatia; from that time forward Venice was a constant and regular customer of the Confederation. The Army of the Signoria was mainly composed of mercenaries; they hired troops in Germany and Switzerland, and sometimes entertained whole divisions and brigades of Hessian and Hanoverian soldiers. They, however, kept no foreign troops on their permanent establishment, and the Swiss regiments were only hired for a term of years. They were employed against the Turks in Candia, the Morea, and Dalmatia. The service was not a popular one in Switzerland, being dangerous and unhealthy. The Swiss and German regiments were always put forward by the Venetians on the most difficult and dangerous enter-

prises, being their most, indeed their only, reliable troops; hence, their losses were exceptionally heavy. Thus, Baron de Roll, of Soleure, carried a regiment of 2,400 men, divided into three battalions, into the Morea in 1686, and at the close of the campaign of 1687 only 240 men remained alive, who were sent back to Switzerland. All the rest had perished either by sickness or by the sword of the Turks. The Signoria of Venice applied for a fresh regiment to replace it, but they had great difficulty in obtaining it; at length, through the intercession of the Pope, who was interested in the war against the Turks, the Catholic cantons accorded a fresh regiment of 3,200 men, divided into four battalions, which was raised and equipped in four months, and marched to Venice, whence it was sent to Zara, in Dalmatia, where it was drilled and disciplined during the winter, and from where it embarked for the Morea. It was called after its colonel, Heller, and served at the unsuccessful siege of Negropont, where it lost many officers and men. Two of its battalions served as Marines on board the Venetian fleet. The whole regiment was afterwards transported to Dalmatia to defend that province against the Turks. While it was stationed at Zara, a dispute occurred between Colonel Heller and his officers, and the Venetian captain-general espousing the cause of the former, put the lieutenant-colonel and six of the captains in irons and sent them to Venice to answer for their conduct; but the Swiss Government on hearing of this outrage was very indignant, and took such a high tone with the Signoria, that the Doge hastened to release the officers and re-instate them in the regiment; and the captain-general had to make a public apology to them in presence of the whole garrison at Zara, paraded for the purpose. After the conclusion of the term of five years for which it had been engaged, the regiment was brought back to Venice, and thence marched home.

In 1716, the Venetians having been suddenly attacked by the Turks, raised three regiments of three battalions each by capitulation with the cantons; the Regiment of Muller had its first battalion raised by Zurich and Berne, and its second and third by the Catholic cantons between them; the Regiment of Stokar was raised by the other Protestant cantons; and the Regiment of Salis by the Grisons. The term of the capitulation was for five years.

All these regiments had blue uniforms with silver lace, and scarlet facings, waistcoats, and breeches. The gorgets and ornaments were steel, the belts buff, and the pouches brown leather. They were not ready in time to share in the disasters of the first campaign in which the Venetians lost the Morea, nor in the glorious defence of Corfu by Count Schulemburg. After the conclusion of the Peace of Passarowitz had ended the brief war, they were kept in garrison at Corfu till their five years were up. They were then broken up, and immediately re-formed into regiments for the service of Spain in Italy.

This was the last Swiss levy made for the service of Venice; the Republic, after the unfortunate result of the war, renounced all hope of recovering her lost possessions in the Levant; and the Turks on their

side were constrained by the growing power of Russia to confine themselves to the defensive.

SERVICE OF THE POPE.

The Popes, like the Signoria of Venice, stood in urgent need of northern valour to serve as stiffening material for the native troops of their States. During the Middle Ages they frequently obtained levies from Switzerland, and up to the year 1557, after which the practice seems to have ceased, probably owing to the influence of the Protestant cantons in the Confederation.

The company of the Pope's Swiss Guards still exists and is the last Swiss corps *à l'étranger* remaining out of so many that were ancient and famous a century ago.

It was raised for Pope Julius II. in the year 1505, and twenty-two years afterwards was destroyed in the sack of Rome by the Constable de Bourbon, the whole company perishing in defence of their master, Pope Clement VII., after a struggle like that of the Spartans at Thermopylæ. Pope Paul III. re-established the company on its former footing in 1548, since which time it has continuously mounted guard at the Vatican. It was composed of four officers, six exempts or sergeants, six corporals, and 100 halberdiers, of whom four were trabans serving at the quarters of the captain. It had a drum-major, four drummers, one fifer, and eight musicians.

The captain ranked as colonel, the lieutenant as lieutenant-colonel, the sub-lieutenant and ensign as captains. The company has, in the course of centuries, undergone some slight changes in its formation, but has never altered its old dress and armament.

It is still dressed in the ancient mediæval Swiss costume of doublet and trunk-hose; the colours are yellow, slashed with blue and crimson. Steel morions are worn by all ranks, and steel corselets by the officers; the arms are halberts, 8 feet long, and long basket-hilted swords.

A mourning habit is worn during the interval between the death of one Pope and the election of another. It is of the same make and fashion as the gala dress, but the colour is black, slashed with white.

Other companies have been raised for the Papal service from time to time, and during the eighteenth century the Pope had four companies of halberdier guards; but only the original company now remains. During the present century several Swiss regiments were raised to defend the Temporal Power and the Papal States against the attempts of the revolutionary and the nationalist parties in Italy.

These were involved in the destruction of the Papal Army by General Cialdini and the Italians at the Battle of Castelfidardo in 1861; and the Papal forces have since been limited to a few companies of Palace Guards, of which the Swiss Guards is one.

The Government of the Confederation no longer recognising the right of recruiting for the military service of foreign Powers in Switzerland, the enlistment of soldiers for the Pope's Swiss Guards is carried on privately by recruiting agents.

SWISS SOLDIERS OF FORTUNE.

During the seventeenth and eighteenth centuries Switzerland furnished a crowd of military adventurers to officer all the Armies of Europe, not only those to which the Swiss cantons contributed permanent or occasional contingents, but also the Armies of Russia, Prussia, Sweden, and Denmark, and of the minor German States.

Le Fort, who raised the first regular body of soldiers in Russia for the service of Peter the Great, was a Swiss from Geneva. He was descended from a noble family of Piedmont, entered the French King's Swiss Guards as a cadet at fourteen years of age, distinguished himself in several campaigns, and was obliged to quit the French service on account of an affair of honour. He entered a Swiss regiment in the service of Holland, and was one of a body of officers engaged to train the Russian troops on the European system. He became first favourite with Peter the Great, and died a field-marshal and admiral in the Russian service. His son succeeded to his father's calling and became a general in the Russian Army.

The noble family of Erlach, in Berne, gave a *maréchal* to France, a *feld-marschall-lieutenant* to the Imperial Army of Austria, and an admiral to Denmark. Von Burkli, of Zurich, was another field-marshal in the Imperial service. The Dohnas, of Berne, furnished three generations of general officers to the Prussian Army. Swiss officers found their way to India; de Paradis, who commanded the French in the fight at San Thomé, and was the first to prove the incontestable superiority of the arms of Europe by routing the whole Army of the Nawab of Arcot with a single French battalion, was a Swiss; and the name of Gingsens, one of Clive's companions in the war of Trichinopoly, is that of a well-known Swiss military family.

In the towns of the Catholic cantons there were several priories and commanderies of the Order of St. John of Jerusalem; and the scions of noble Swiss families became Knights of Malta in the *Langue Allemande* of the Order, the last relic of the age of chivalry and of the Crusades left in Europe at the close of the eighteenth century.

At the outbreak of the French Revolution there were sixty-five Swiss officers holding general rank in the Armies of Great Britain, France, Holland, Spain, Naples, Sardinia, and Saxony, of whom ten were lieut.-generals (one in the British Army), twenty-nine *maréchaux de camp* or major-generals, and twenty-six brigadier-generals, all on the active list. There were also living twenty-one Swiss general officers who had been placed on the retired list of different Armies.

At the same time the Swiss troops in the permanent service of foreign Armies were distributed as follows; the strength in bayonets is given in round numbers:—

France had	26	Swiss battalions, aggregating	14,000	men
Holland „	12	„ „ „ „	10,000	„
Spain „	8	„ „ „ „	5,000	„
Naples „	8	„ „ „ „	6,000	„
Sardinia „	6	„ „ „ „	3,000	„
Total	60	Battalions	38,000	„

There were also six companies of Swiss Halberdiers, employed as Palace Guards; one company in the service of the King of France, one in that of the King of Sardinia, and four in that of the Pope; aggregating altogether 700 officers and men.

SERVICE OF FRANCE UNDER THE EMPIRE.

The triumph of the French Republic secured the ascendancy of the Democratic party in the Swiss Government, and the ancient families of the aristocracy lost all their power and influence; and this change soon produced a deplorable effect on the military spirit of the nation. From this time forward the Swiss people became more and more addicted to peaceful pursuits, and neglectful of the trade of soldiering. The introduction of the conscription as the means of recruiting the Armies of Europe had caused an entire cessation of the demand for mercenary soldiers, and Napoleon took good care that Switzerland, which he treated as an appanage of his Empire, should supply soldiers to no other Army but his own.

Helvetian demi-brigades served in the Armies of the Directory and the Consulate, and bore their full share in the glories and disasters of those memorable years of warfare, when the old standing-army system of Europe was broken down by advanced ideas and new inventions. After the proclamation of the Empire, Napoleon concluded a capitulation with the Swiss Confederation for the maintenance of a permanent force of 16,000 Swiss soldiers for the service of France, organised in four regiments of 4,000 men each. The regiment was divided into four battalions, three being field, and the fourth a *dépôt* battalion; each battalion had nine companies, one of Grenadiers and eight of Fusiliers, also a detachment of artillery for the service of two field-pieces attached to each battalion.

These regiments were not called by the names of their colonels, but were numbered and entitled the 1st, 2nd, 3rd, and 4th Swiss Regiments. The regimental staff consisted of a colonel, lieutenant-colonel, and major, a judge-advocate, and a Catholic and a Protestant chaplain.

The battalion staff comprised a battalion-commander, an adjutant-major, a quartermaster, an ensign, and a surgeon.

The Fusilier companies had four officers, fourteen N.C.O.'s, two drummers, and ninety-two private soldiers; 112 of ranks.

The Grenadiers had only seventy-two privates, or ninety-two of all ranks.

The artillery company attached to each regiment had four officers, twelve N.C.O.'s, and fifty-two gunners.

The uniform of these regiments was a red coat, white breeches, and black gaiters. The officers' coats had gold lace trimmings, the men's yellow braid, and yellow worsted epaulettes.

The battalion companies wore a broad-topped chako, the Grenadiers had bearskin caps. The armament and equipment were the same as those of the French infantry of the Line. The 1st Regiment was distin-

guished by yellow facings; the 2nd had royal-blue; the 3rd black; and the 4th sky-blue.

Napoleon also made a capitulation with the Canton of the Valais for a battalion of 960 officers and men. It was also dressed in red, with white facings. After the annexation of the Valais to France, it was turned into the 2nd Battalion of the 11th French Light Infantry.

Another Swiss battalion was raised at Neuchatel to serve as a guard to Napoleon's major-general (chief of staff), Berthier, whom the Emperor had created Prince of Neuchatel, vice the King of Prussia, deposed.

This battalion was dressed in yellow, with scarlet facings, and was nicknamed in the French Army, "Prince Berthier's canary birds."

Napoleon re-established the office of colonel-general of the Swiss in the French Army, and conferred it first upon Marshal Lannes, and after his death on Marshal Berthier.

The 1st Swiss Regiment was sent into Italy and served under Joseph Bonaparte and Murat in the Kingdom of Naples. At the Battle of Maida it was routed by the Swiss Regiment de Watteville, serving in the English Army, and which had itself, by a curious coincidence, been once the first Swiss line regiment in the French Army. In the good old times encounters between Swiss regiments serving in hostile foreign Armies had not been infrequent, and they spilt the blood of their brethren without compunction or remorse in fulfilling their duty to the flag of their adopted country; but those times were past, and the tidings of the hostile meeting of the two Swiss regiments at Maida caused grief and regret in Switzerland.

The other three Swiss regiments went to France, and their service battalions all had a share in turn in the endless operations of the French Armies in the Peninsula. Amidst many victories, one shared in Dupont's disaster at Baylen, another in Junot's defeat at Vimiera. Captain de Salis-Samade, with fifty men of the 2nd Regiment, covered himself with glory by his defence of the barrack and church of Fuente el Sanes for three days against a host of Spanish guerillas on the 21st, 22nd, and 23rd October, 1810. In 1811, all the four Swiss regiments were re-united in France, in preparation for the forthcoming expedition to Russia, for which they were formed in two brigades.

The Valaisan and the Neuchatel battalions also took part in the march to Moscow. The Swiss regiments were among the last corps to keep their formation in that disastrous retreat, and they lost heavily at the battles on the Beresina.

They took part also in the campaign of 1813, at the close of which they were so reduced in numbers that they could only form one battalion for the field, and half a battalion as a *depôt* in each regiment. In 1814 Napoleon sent them to garrison the fortresses on the side of Holland. The 1st Regiment defended Bremen gallantly for two days against 5,000 Russians and Prussians, and capitulated on honourable terms. The other regiments were still in garrison when the end of the Empire came, and

with the rest of the French Army they took the oath of allegiance to the restored Bourbon dynasty.

When Napoleon returned from Elba, the four Swiss regiments alone, out of the whole French Army, remained faithful to their oath, and refused to join his eagles. Napoleon tried every means to shake their fidelity, but they requested that they might be allowed to depute one of their officers to obtain instructions from their own Government. The Federal Council sent back word that they were on no account to accept service under Napoleon. He was very angry, and ordered all the Swiss officers to quit France at forty-eight hours' notice; and they left, enjoining the sergeants to keep the men to their duty.

After the officers had gone, Napoleon renewed his efforts to gain over the men, and he succeeded in seducing about 500 of them, who were formed into a battalion of his Foreign Legion, and fought at Waterloo. All of them who afterward returned to Switzerland were punished by the authorities as deserters from their colours.

Napoleon, finding that he could do nothing with the rest of the men, let them go back to their homes in obedience to the recall of the Federal Government. They were employed subsequently with the rest of the Swiss forces in the invasion of France on behalf of the allies, and were disbanded at the conclusion of the war.

SERVICE OF ENGLAND.

On March 10th, 1690, the five Protestant Cantons of Berne, Zurich, Glarus, Appenzel, and Schaffhausen, signed a treaty with William III., of England, providing a levy on the part of the cantons of two regiments each of 2,000 men, divided into two battalions of five companies each. The colonel and the first battalion of the first regiment were to be furnished by Zurich. The rest of the regimental staff and the second battalion were to be apportioned between Glarus, Appenzel, Schaffhausen, and the town of St. Gall. The second regiment was to be raised entirely by the Canton of Berne. For some reason or other, these arrangements were never carried out.

In 1755, King George II. commissioned Jacques Prévôt, or Prévost, of Geneva, to raise a Swiss regiment of four battalions for the service of England. M. Prévost had distinguished himself in the service of the King of Sardinia, and afterwards obtained a company in a Swiss regiment in Holland, of which he made his brothers, Augustine and Mark, captain-lieutenant and lieutenant respectively; in 1755 the three brothers passed into the British service, and the eldest made his two brothers lieutenant-colonel and major of the regiment which he was raising for the King.

When a capitulation was signed for the maintenance of a regiment, a lump sum was always fixed as the remuneration to be paid to the colonel for the expenses of recruiting and equipping his corps; half of this sum was paid to him in advance, and the balance after the regiment had passed muster and inspection at the place specified in the agreement, after which it was at the disposal of the hirer. Colonel Prévost took infinite pains in equipping his regiment, and in procuring the

services of distinguished and experienced officers for it; but when it was ready for inspection in 1756, the opposition in the House of Commons succeeded in refusing the credit for its expenses, and the King and Colonel Prevost were both left in an awkward predicament. An escape from it was found by making two battalions of the regiment into a 5th and 6th Battalion of the Royal American Regiment (afterwards the 60th Regiment of the Line, and now the King's Royal Rifles), and transferring the other two battalions to the service of the Honourable East India Company. These last were despatched to Madras, and some of them being sent in boats along the Coromandel Coast to Fort St. David, were taken by a French man-of-war. Probably Captain Gingers, who distinguished himself in the wars of the Carnatic, belonged to these battalions; and also Polier, of Lausanne, who rose to the rank of major-general in the Company's service, and died in 1759 when in command of the troops at Fort St. George.

The three brothers Prevost accompanied the first two battalions to North America to join the Royal American Regiment, which was at that time a Colonial corps. They took part in many campaigns and saw severe fighting against the French, the Red Indians, and the revolted Colonists in the War of American Independence; and all the three brothers received grants of land in Canada as a recompense for their services. All three rose to general rank in the British Army. Augustine distinguished himself by his successful defence of Savannah against the French and Americans, and was Governor of Georgia at the time of the recognition of American independence.

Frederick Haldimand, of Yverdon, had served in the Armies of Sardinia and of Prussia, and had made campaigns under Frederick the Great; he was afterwards lieutenant-colonel in the Swiss Guards in Holland, and in 1754 entered the service of England as colonel in the Royal American Regiment. He made all the campaigns under Wolf and Amherst, and greatly signalised himself by his defence of Fort Oswego against the French. He rose to be lieutenant-general, and during the War of American Independence he was made Governor-General of Canada, and defended that province against the attacks of the Americans.

Henri Bouquet, of Berne, had served in Swiss regiments in Holland and Sardinia, and entered the English service and Royal American Regiment along with his friend Haldimand. He rose to the rank of brigadier-general, and greatly distinguished himself by his victories over the Red Indian tribes who were at that time active and dangerous on the frontiers of the British Colonies. He was made Governor of Pensacola, and died in that post in 1765. Both the names of Prevost and Haldimand recur in the British Army List; Sir George Prevost commanded the British troops in Canada in the second American war; and a Haldimand was captain of a company in the 2nd Swiss Regiment, raised for the British service in 1856.

For though the two first attempts to entertain Swiss regiments in our Army had come to nothing, necessity at last obliged us to accept

their services, and during the wars with Napoleon we had three Swiss regiments, called after their colonels, the Regiments of Roll, de Watteville, and de Meuron, in our Army.

At the outbreak of the French Revolutionary War, the system of conscription introduced by Carnot made the numerical inferiority of our Army so keenly felt, that our War Office, in dire need of recruits, turned its attention to Switzerland, where there were a number of veteran soldiers disbanded from the Armies of France and Holland. Baron Louis de Roll, of Soleure, had been a captain and lieutenant-colonel in the regiment of the Gardes Suisses, and had made the campaigns of 1792 and 1793 with the *émigré* Army on the Rhine. The British War Office engaged him to raise a Swiss regiment of two battalions for them, and as the Swiss authorities, in league with the French Republicans, forbade the recruiting of the regiment in Switzerland, the enlistment bureaux were established on Austrian territory. In a few months, 1,200 men had been enlisted, and 1,800 by the end of the year 1795. Its lieutenant-colonel was Jost Durler, of Lucerne, one of the defenders of the Tuileries on 10th August, 1793, and most of its officers and men were old soldiers of the French and Dutch services. The regimental staff was a colonel, lieutenant-colonel, and major, two aide-majors, two sous-aide-majors, two adjutants, two ensigns, a quartermaster, a Catholic and a Protestant chaplain, a surgeon-major, and two assistant-surgeons. Each battalion had nine companies, one of Grenadiers, seven battalion companies, and a company of Chasseurs, dressed in green, and armed with rifles. The rest of the regiment was dressed like the British Infantry of the Line; the lace was silver, the colours were red, with a white Swiss cross, and were a gift to the regiment from the noble ladies of Soleure. The regiment was at first called the Royal Étranger, but was soon more commonly known as the Regiment of Roll.

In 1796 the regiment was sent to Corsica, then in occupation of the English, and for the next twenty years it was continuously employed on Mediterranean stations, at Gibraltar, Malta, Corfu, spending most of its time, however, in Sicily, engaged in defending that island from the attempts of Murat, King of Naples. It took part in two expeditions to Egypt, in Sir Ralph Abercrombie's successful one, and in General Fraser's subsequent unfortunate one, in which the regiment was terribly cut up at El Hamed by the Turks and Mamelukes. Its ranks were recruited by Swiss soldiers, deserters from Napoleon's Army, or made prisoners by the English at Maida, and by the Spaniards at Baylen.

In 1812, the remnants of the Irish Regiment of Dillon, which had passed from the Royal service of France into that of Great Britain at the Revolution, were incorporated with the Regiment of Roll, and it was sent into Spain, where it joined the Anglo-Spanish Army, operating against Marshal Suchet in Catalonia. For this service it was allowed to bear the word "Peninsula" on its colours and appointments. After the conclusion of the war it was quartered at Corfu, and was transported to Venice, and disbanded there in 1816.

The Regiment of De Watteville was the old Bernese Regiment of Ernest, the senior Swiss corps in the French Line. During the Revolution it was recalled from the service of France by the canton, and was afterwards leased to England, and was employed in the Mediterranean along with the Regiment of Roll in defending Sicily from the attacks of the French, and in making descents upon their possessions in Italy. It was at the Battle of Maida where it routed the first Swiss regiment of the French Army and took a number of prisoners, who were mostly incorporated with it and the Regiment of Roll. In 1814 it was transported to Canada to fight the Americans on the Great Lakes, along with the Swiss Regiment de Meuron. After the conclusion of the general peace in 1815 it was disbanded. All of the men who wished to remain in Canada were given grants of land in the Colony. The rest were brought back to England, and sent to their homes in Switzerland. The regiment had been embodied 145 years, of which 120 were passed in the French, and twenty in the British service.

The origin of the Regiment de Meuron has already been related in the account of the service of Holland. After it had been received into the service of England, its blue uniform was changed to scarlet, with blue facings. It was transferred from Ceylon to India, and took part in the campaign against Tippoo Sultan and the storming of Seringapatam. It was quartered at several stations in the Madras Presidency, where the names of the regiment and its officers may be found on many old monuments and gravestones to this day. In 1807 it was brought to Europe, was quartered in England, in the Channel Islands, and afterwards joined the Regiments of Roll and de Watteville in the Mediterranean. In 1813 it was transferred to Canada, where it saw severe fighting with the Americans on the frontier.

While the regiment was in England, one of its officers obtained leave to visit his home in Switzerland, and passing through Paris, was arrested by the French Police as an associate of Royalists, and other compromised persons; and the unfortunate officer was shot as a spy by order of Napoleon. This circumstance having attracted the Emperor's attention to the clandestine recruiting which was carried on in Switzerland for the regiments of the British service, he took stringent measures to put a stop to it altogether, and these regiments were afterwards forced to rely almost entirely on deserters and prisoners of war for a supply of recruits.

At the close of the war not half the men in De Meuron's Regiment were Swiss. The rest were a mixture of all the various nationalities of Europe. The Regiment de Meuron was the only Swiss regiment that served in all the four quarters of the globe during its brief period of existence. It was disbanded at the close of the war in 1816 under the same conditions as the Regiment de Watteville. It had served thirty-five years in all, fifteen in the Dutch, and twenty in the British service.

All these three regiments distinguished themselves in the British service by their fidelity, discipline, and bravery, and were often compli-

mented on their conduct in general orders by the commanders of the forces in which they served.

They used to fly the Swiss cross in their colours, with the Union Jack in the upper left-hand canton. The Regiment de Meuron had black and yellow flames in the other three cantons.

In 1855, two Swiss regiments were raised for the English service as part of the Foreign Legion, which was formed to supplement our national forces during the Crimean War. They had, however, hardly been embodied, when they were disbanded owing to the sudden termination of the war. They had already reached Smyrna on their way to the seat of war. It is quite possible that we might again seek for soldiers in Switzerland under similar circumstances, for as long as we retain our present antiquated system of recruiting our Army by voluntary enlistment, we shall still feel the need of supplementing it by the services of mercenary auxiliaries.

SERVICE OF FRANCE UNDER THE RESTORATION.

Louis XVIII., on his restoration to the throne, showed his gratitude to the Swiss for their fidelity to the House of Bourbon by every means in his power. He paid up all the arrears due to the cantons on the old capitulations at the outbreak of the Revolution.

He re-established the company of the Cent Suisses de la Garde with all its old honours and privileges, and increased its numbers to 333 officers and men. He concluded new capitulations with two groups of cantons in 1816 for the hire of six Swiss regiments, two of the Guard, and four of the Line. Each group of cantons was to furnish one regiment of Guards and two Line regiments, and the levy of one or more companies was allotted to each canton in proportion to its resources in population.

These regiments were organised in three battalions of eight companies each; the flank companies of the 1st and 2nd Battalions were Grenadiers and Voltigeurs; the 3rd Battalion was composed entirely of Chasseurs. The companies were 100 strong. To each regiment was attached a detachment of artillery of one lieutenant, four N.C.O.'s, twenty gunners, and fifteen drivers.

The Guards had a higher rate of pay than the Line in all ranks, and their officers had a higher grade of Army rank.

The company of Cent Suisses was equipped as a company of Grenadiers; the uniform was modernised, but the old colours of royal-blue, faced with scarlet, were retained. All the privates of the company ranked as sergeants in the Army.

The uniforms of the Swiss regiments were red; those of the Guards had bars of silver lace or white braid across the revers on the breast of the coat. The trowsers were white linen in summer; sky-blue cloth with red stripe in winter. The head-dress was a chako trimmed with white braid, with a tall white hackle feather. The Grenadiers had bear-skin caps with white feathers and ornaments.

The Guards had silver, and the Line regiments gold lace and buttons. The facings of both the Guards regiments were royal-blue; those of the Line regiments were of different colours. The 1st Regiment had royal-blue facings; the 2nd had black velvet revers and cuffs, with red collar and red straps on the cuffs; the 3rd had black velvet throughout; the 4th had royal-blue cuffs and revers, with red collar and cuff-ornaments like the 2nd.

The regiments of Guards were numbered as the 7th and 8th Regiments of Infantry of the Guard; those of the Line were numbered as the 1st, 2nd, 3rd, and 4th Swiss Regiments. They ranked after all the French regiments of the Guard and of the Line respectively.

Louis XVIII. kept the Swiss troops about his person, and showed them every mark of favour. He made his brother, the Count d'Artois, afterwards King Charles X., colonel-general of the Swiss and Grisons. But the Swiss troops were now unpopular with the French nation and Army, for they were looked upon by the people as foreign mercenaries whose bayonets were employed to hedge about an unpopular dynasty, while their higher rate of pay and the favour shown to them by the King excited jealousy among their French fellow-soldiers. Some of the regiments were sent into Spain in 1823 with the French expedition designed to crush the Liberal movement in that country, and the 1st and 2nd Swiss Line regiments remained in garrison at Madrid, and served as guards to King Ferdinand until 1828.

In 1830 the Swiss Guards again fought valiantly and shed their blood freely and fruitlessly once more to support the falling Bourbon monarchy, the fate of which was decided by the French troops of the Line going over to the insurgents.

The Government of Louis-Philippe repudiated the capitulations, which had nine years more to run before the expiration of the contract, and disbanded all the Swiss regiments. Many of the officers and men entered the Foreign Legion which was established in the French Army, and which was afterwards transferred to the service of Queen Isabella of Spain, to be employed against the Carlists. The rest returned to Switzerland, where they long continued to wear their red uniforms in the ranks of the blue-clad Federal Militia.

No more Swiss troops were raised for the French service by capitulation; Louis Napoleon raised a Swiss Brigade of two regiments of infantry and a battalion of Chasseurs by recruitment to serve in the Crimean War; each regiment was composed of two battalions of four companies. The recruiting bureaux were established on French ground close to the Swiss frontiers.

They were dressed in green, with yellow facings, and red trowsers. The Chasseurs battalion was dressed entirely in dark green.

Like the Anglo-Swiss regiments raised at the same period, these corps were not formed in time to take part in the war. After the peace, the two regiments and the Chasseur battalion were broken up and reformed in one, under the title of the 1st Foreign Regiment, which was

sent to Algeria to garrison that colony. It served in several campaigns against the Kabyles, but it became increasingly difficult to obtain Swiss recruits to fill its ranks, and at last it was found impossible to maintain its strength. It was therefore broken up, and the remains of it incorporated in the other foreign regiments.

SERVICE OF NAPLES IN THE NINETEENTH CENTURY.

The capitulations of the old Swiss regiments in the service of Naples had expired during the troubled times of the French Revolution, and had not been renewed; but after the abortive revolution of 1820 had been suppressed only by the aid of Austrian bayonets, the King, Francis I., sought for more reliable arms to uphold his throne than those of his native soldiery; and in 1825 he concluded capitulations with divers Swiss cantons for the levy of four regiments of 1,500 men each.

The 1st Regiment was furnished by Lucerne, Uri, Unterwalden, and Appenzell; the 2nd by Soleure and Fribourg; the 3rd by Schwytz, the Grisons, and the Valais; the 4th by Berne. The soldiers were enlisted for four or six years, with option of re-engagement. After twelve years' service they could take their discharge with a year's pay as gratuity, or might be transferred to the Neapolitan Veteran establishment. After twenty years' service they were entitled to half-pay, as pension for life; after twenty-five years' to two-thirds; after thirty years' to three-fourths; and after thirty-five years' to full-pay pension. After the British Army, these troops were the best paid troops in Europe.

Each regiment had two battalions; the battalion had six companies, the flank companies being Grenadiers and Chasseurs. The strength of the companies was from 120 to 130 of all ranks. There was a detachment of artillery of a lieutenant and thirty-nine N.C.O.'s and men attached to each regiment, with two 6-pounder guns, and their waggons, and twenty-four horses for their teams. These guns did inestimable service in the street fighting in Naples in 1848. The gunners, as well as the Grenadiers and Chasseurs, were picked from the battalion companies.

The regiments were numbered from 1 to 4, but were generally known by the names of their colonels. The promotion of the officers in the first three regiments was regulated partly by seniority, partly according to cantons; in the Bernese Regiment entirely by seniority.

The four regiments had a brigade depôt at Genoa, to which port the recruits were marched from their homes in Switzerland, and thence embarked on Neapolitan transports for Naples.

In 1848 these 6,000 Swiss troops saved the throne of the Bourbons in Naples. The Kingdom was in a state of revolution, Sicily was in open revolt, the native troops were disaffected or wavering; barricades were thrown up in the streets of the capital, which was in the hands of an armed mob of National Guards, headed by adventurers and agitators from all the countries of the Continent. The King and his advisers were terrified into submission, and their successive concessions to the imperious demands of the popular leaders, only emboldened the latter, and encouraged them to proceed with their attempts to subvert the

authority of the Crown. The Revolution seemed an accomplished fact, when at the eleventh hour the timid and irresolute King was at last persuaded to strike a blow in self-defence and to let loose his eight battalions of Swiss soldiers on the insurgent city. The Swiss stormed the barricades and escalated the balconies of the fortified houses; they lost six officers killed, and had thirteen wounded, and more than 200 men put *hors de combat* in the murderous street-fighting; but they swept the city from end to end. *Comme ils ont balayé cette canaille!* The Neapolitan troops plucked up spirit and seconded them gallantly, and by the end of that bloody day there was no more talk of a Revolution in Naples. Had Louis XVI. shown as much spirit as King Ferdinand, and sent his twenty-six Swiss battalions into the streets of Paris on the 12th July, 1789, the French Revolution might have had a different termination. But the House of Bourbon was fated to fall, and the victory of its Swiss troops at Naples only postponed its final doom.

For the use King Ferdinand made of the victory gained for him by the arms of the Swiss soldiery, disgusted the Liberals throughout Europe, and created a strong feeling against the system of capitulations in Switzerland itself, which before long led to the abrogation of those with the Pope and the King of Naples, the last agreements of the kind still existing.

The invention of the system of conscription and later on of the universal compulsory military service, which was early adopted by the Swiss themselves, had already destroyed the demand for foreign mercenary troops to supplement the national forces of Europe, and the Swiss regiments of King Ferdinand and Pope Pius were entertained no longer for purposes of foreign war, but in the interests of a system of domestic tyranny. With the disavowal of these services by the cantons, the history of the Swiss regiments *d l'étranger* is brought to a conclusion. A few scions of ancient and noble Swiss families are still to be found serving as officers in the Armies of Germany and Austria; and a few hundreds of soldiers, enlisted into the French Foreign Legion, garrisoning frontier posts in Algeria and Tonquin. These, with the company of parti-coloured Halberdiers at the Vatican, are to-day the scanty representatives of the fifty thousand Swiss Grenadiers and Fusiliers who, scarcely more than a hundred years ago, mounted the guard at the Tuileries and at the Hague, and bore their white-cross colours to the front on all the battle-fields of Europe, from the plains of the Netherlands to those of Lombardy.

The muster rolls, present states, and casualty lists of these old Swiss regiments *d l'étranger*, which were made as an annual return to the canton responsible for them, are still carefully preserved in the archives of the cantons in Switzerland.

THE CONSTRUCTION AND WORKING OF BELLEVILLE BOILERS.

By A. E. TOMPKINS, Engineer, R.N.

Belleville Boiler.—This boiler is built up of many tubes of about 4½ inches in diameter, and about 7 feet long. The tubes are arranged in groups called the *elements*, each boiler is composed of seven or eight elements, and each element contains eighteen or twenty tubes. From the sketch (Fig. 1) it will be seen that, commencing from the lowest junction box *Z*, the tubes are inclined upwards by raising opposite ends alternately. The junctions are formed at the ends of each two tubes, one of which is inclined downwards to the junction box below, and the other upwards to the junction box above. The lowest tube in each element is connected to the *feed collector G*, and the uppermost to the steam chest *V* by a pipe *P*.

After filling the boiler to the working level shown, fires may be lighted. The steam and water then rise through the generating tubes until finally ejected into the steam chest *V*. From here the steam escapes through the steam valve or safety valves, and the water falls into the bottom of the chamber and mixes with the feed water pumped in by the feed pumps. This water then flows downwards by the downcomers *U* to the sediment chamber. The upper part of the sediment chamber is connected to the feed collector *G*, so that a continuous flow of water is supplied to the generating tubes. The boiler is surrounded by a casing of thin sheet-iron and asbestos. At the front of the boiler there are two large doors which, when open, expose all the front junction boxes and fittings; these doors correspond to the smoke-box doors of the ordinary shell, or marine, boiler. Immediately below these doors are the furnace doors, generally four in number, and below these again are the draught doors leading to the ash-pits. The fires are forced to a small extent by introducing jets of air from just above the furnace doors on to the top of the fire. Special air compressing pumps are supplied for this purpose; the pressure in the jets is about 30 lbs. per square inch.

The Belleville boiler differs from nearly all other water-tube boilers in four important respects. 1. It has straight tubes of equal length and

diameter. 2. Each tube can expand or contract almost independently of any other part of the boiler. 3. The flames strike the heating surfaces almost at right angles, and this should give the best results, as it is most favourable to the generation of steam. 4. Each tube can be examined internally by removing the small door in the junction box opposite the end of the tube.

In addition to these advantages, there are others of a practical character which affect its working in a satisfactory manner. The "circulation" of the water in the boiler is continuous, and constant in direction, this leaves the least deposit of scale; any loose scale or mud will generally find its way into the sediment chambers, and from there can be blown out by the valve *S*. Nearly the whole of the floor space occupied by the boiler can be used as grate surface. Its weight is not much below that of the ordinary marine boiler, but the advantage is greater than would otherwise appear, if it be noted that in the Belleville only natural draught ($\frac{1}{2}$ inch air pressure) is required to produce greater power per unit of weight, compared to the forced draught (2 inches air pressure) of the ordinary boiler.

The weight of an eight-element boiler without mountings or water is about $14\frac{1}{2}$ tons, the weight of water at working height is about $1\frac{1}{2}$ tons, giving a total of $15\frac{1}{2}$ tons when working. From 550 to 600 I.H.P. may be obtained from this boiler when burning 20 lbs. of coal per square foot of grate: a very low rate of combustion, and which can be easily obtained by good stoking without forced draught.

Automatic Feed Regulator.—This is probably the most important factor in the successful practical working of the boiler. In Fig. 1, a sectional elevation of the apparatus is shown in connection with a side view or elevation of the boiler, thus showing the relative position of the various parts.

Standing out a little from the front, and generally a little to the right or left, is the *automatic feed regulator*, which consists of a cast steel chamber, in which a float *M* can move either up or down. The upper part of this chamber is connected by a pipe *J*, led up to the height shown and down to a junction box of the nearest element; the junction box generally selected for the connection is the fourth from the top of the element. The bottom of the chamber is connected by the pipe *R* generally to the lowest junction box *Z*, but sometimes to the *feed collector G* or to the upper part of the sediment chamber. By these two pipe connections *R* and *J* a water level is obtained in the float chamber corresponding with that in the boiler. Consequently any alteration in this water level will operate on the float *M*. This float is fitted with a guide rod which works in a bracket *T*. The float is also connected by a vertical rod *EM* to the lever *EFH*, which has its fulcrum at *F*; consequently any movement of the float operates on the rod *BH*, and by it on another lever *ABCDX* exterior to the chamber. The lever *ABCDX* has its fulcrum at *C*. A rod *DK* works the feed valve *K*. At *A* a small adjusting spring *a* and weights *W* and *A* are placed; these are used for any small adjustment of the proper working equilibrium of the float and

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levers. By adding weights it will be seen that the float may be allowed to rise more easily; while by removing them there is a greater tendency for it to fall.

Suppose the water level to be falling in the boiler, then the float *M* will fall with it; by means of the interior lever *EFH* the rod *BH* will rise and produce a fall in the rod *DK*, thus opening the valve *K*; this will admit the feed water from the pipe *N* into the pipe *O* and through this and the non-return valve *P* into the steam chest *V*.

A pressure considerably in excess of the working boiler pressure (nearly double) is maintained in the pipe *N* by the feed-pumps. The quantity of feed water can be regulated by the valve *L*, which for convenience is usually fixed to the sediment chamber, but has no internal connection with it. From the lower part of the steam chest the water finds its way by the downcomers *U* (one of which is fitted at each end of the steam chest) to the sediment chamber; the upper part of which is connected to the feed collector *G*.

A water-gauge glass *QQ* and test cocks are generally fitted on the float chamber, which acts as a steady pipe for this purpose. Another gauge glass is fitted to a steady pipe at the other side of the boiler, the upper and lower parts being connected by pipes in a similar way to that in which the float chamber is connected to the boiler.

The lever *EFH* is pivoted on knife edges at *F* and is fitted with a roller bearing at *H*. All the packing glands of the lever rods are of special construction and are generally packed with graphite packing. The valve *K* can be examined by removing the screwed cap at the bottom of the valve box. At *X* a rod is fitted so that the valve and lever can be worked by hand from the stokehold platform.

Steam Chest or Separator.—The extremely small amount of water contained in water-tube boilers, compared with the enormous rate of evaporation, necessitates special means for separating the steam from the water from which it is formed, so as to prevent the latter finding its way with the steam into the engines. It might be mentioned here that the great gain in power per unit of weight of water-tube over the ordinary flame-tube boilers, is in a great degree due to this comparatively small weight of water contained at working height. In the Belleville boiler this gain is not so great as in some others, the Thornycroft for example; but, on the other hand, the power is obtained with a lower rate of combustion per square foot of grate surface. In Fig. 2, *P* is the junction of an element to the steam chest *V*. When the boiler is at work, steam and water are ejected upwards from the generating tubes (or elements) and impinge on a series of dash plates with serrated edges, following the course of the arrow heads through slits or small holes in the plates, until finally the steam passes through small holes (one of nine-sixteenths of an inch in diameter for each element) into a steam-tight chamber. The steam pipe leading to the reducing valve, and from thence to the engines, is connected by the usual steam valve to this chamber. The water separated from the steam by the *dash plates* flows down into the bottom of the steam chest, and

mixes with the feed water from the automatic feed regulator on its way through the downcomers at each end of the steam chest to the sediment chamber and feed collector. From the sediment chamber and feed collector it circulates again through the generating tubes.

Where the junction of the element to the steam chest is fitted, a doubling plate is riveted inside the steam chest. Near the bottom of the steam chest towards the front are two or three small oval doors, which can be easily removed for cleaning and temporary examination of the interior. At each end in some instances, and at only one in others, a flanged joint is fitted, so that by removing the steam chest from its position on the boiler, and taking off the cover, a thorough examination or refit of the interior parts can be made. The connection for the downcomer is generally cast on this cover. If there is only one cover, a small oval door is fitted at the opposite end above the downcomer (see Fig. 1).

Junction Box.—Fig. 3 shows a horizontal section and front elevation of the ordinary junction box at the front end of the tubes. In the Belleville boiler it will be noticed that the usual English practice, of expanding the tube ends by rollers to make the joints steam-tight, is not carried out, but that screwed joints are generally employed. The junction box varies slightly in form and shape as made by different firms, but the principle is the same in all. There are two spigot pieces cast on it, which are screwed internally with a slightly different pitch of thread to that on the ferrules and sleeve pieces; the slight difference of pitch secures a tight joint. The sleeve pieces are made tight at each end by graphite joints and a nut at the outer end. A blunt chisel or set is used for hardening up the nuts and sleeve pieces where space does not allow of gas-tongs being used. Opposite the end of each tube is a small clearing hole fitted with an oval door secured by a single bolt and nut through a bridge piece. This door is surface jointed.

The junction box at the back end is very similar as regards the securing of the tubes, but the sleeve piece and ferrule are omitted and the tube is screwed directly into the junction box. No clearing holes are fitted at the back end. Lugs are cast top and bottom of each junction box to carry the weight of the tubes above. The lugs are side-slotted from front to back so that each junction box can move in the direction of the expansion of the tubes, independently of those next it. The front junction boxes in one row, generally the second from the top, are fitted with a fusible plug, so that warning may be given and fires put out in case of any stagnation in the circulation and consequent overheating of an element.

Special junction boxes are required for the top and bottom connections at the front end. The top box is secured to the vertical tube *F*, leading to the steam chest by a square flanged joint with four bolts and nuts.

The bottom connection shown in Fig. 4 is a sectional side elevation of the connection with the feed collector. A horizontal section of the bottom junction box is very similar to that shown in Fig. 3, one of the differences being that one clearing door is omitted and a screwed

plug substituted opposite the part where no tube is connected, there being only one tube connected to each *front* bottom junction box. The lower water connections of the steady pipe and float chamber are generally made at this point. The lower part of the junction box has a conical hole drilled in it vertically which fits over a corresponding steel plug with a nickel ferrule facing for making the joint. This plug is screwed into the top of the feed collector, and forms the connection between it and the generating tubes. In front of the bottom junction box a lug is cast, so that it is secured by means of a T-headed bolt to an angle iron bolted on to the front of the feed collectors.

The feed collector has three or five clearing holes and doors fitted of a similar size and shape as those fitted to the junction boxes. At each end the feed collector is connected by a cast steel pipe to the upper part of the sediment chamber.

When two downcomers are fitted, there is a possibility of the water circulating unevenly; and to assist in dividing the circulation evenly, a flap valve is fitted in the top of each sedimental chamber to control the flow of water into the feed collector.

Reducing Valve.—To reduce priming and the chances of its occurring, it is found advisable to fit a reducing valve in conjunction with Belleville boilers. The valve may be fitted at any place in the steam pipe, either at the boiler or at the engine. The latter has been adopted generally for naval boilers and a large reducing valve is now found in each engine-room. The effect of reducing the pressure of the steam is to produce a better quality of steam, as by lowering the pressure (and temperature), a certain amount of heat is set free which converts some of the particles of water in suspension into steam. It also partly counteracts any condensation which may take place through imperfectly lagged steam pipes. If the steam generated by the boiler were dry *saturated* steam, the effect of reducing the pressure would be to *superheat* the steam; within moderate limits this is not a probable effect, as nearly all *common* steam contains some priming water or particles of water in suspension.

A sectional elevation of a reducing valve is shown in Fig. 5. There is a cylindrical gridiron valve *A*, which has ports cut in planes at right angles to the axis and extending about two-thirds of the circumference. This valve is open at the bottom end and partially closed at the top, a few holes only being drilled to allow the reduced pressure access to the space above the valve. These holes are $\frac{5}{8}$ inch in diameter. The valve *A* is connected by two loose pin joints to a spindle *B*, which is connected to the lever *CDE* at *C*; this lever has its fulcrum at *E*. Similar ports are cut in a cylindrical valve face *G* which surrounds the valve, and which is secured into the valve chest *V* in a similar manner to that of the liner of a cylindrical slide valve into the slide casing. The lever *CDE* has a cross beam at *D*, poised on knife-edges, to which are attached frames containing several springs; the lower part of the frame is attached by a similar cross beam *H* to a square threaded adjusting screw *L* which passes through the boss of a wheel *M* working in a bracket on the bottom cover *N* of the valve chest. By means of the wheel *M* the tension of

the springs can be adjusted. The end *E* of the lever *CDE* is connected to a support on the valve chest by a rod *EF*.

In the figure the valve is shown *open*, the ports of the valve being opposite those in the valve face. Steam enters from the steam pipe as indicated, and finds its way through the ports into the interior of the valve, impinging on the cast-iron *dash column* as it does so.

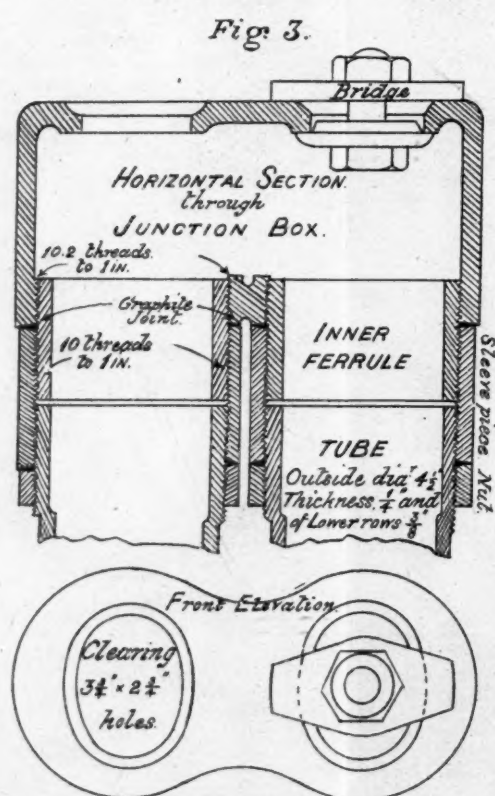
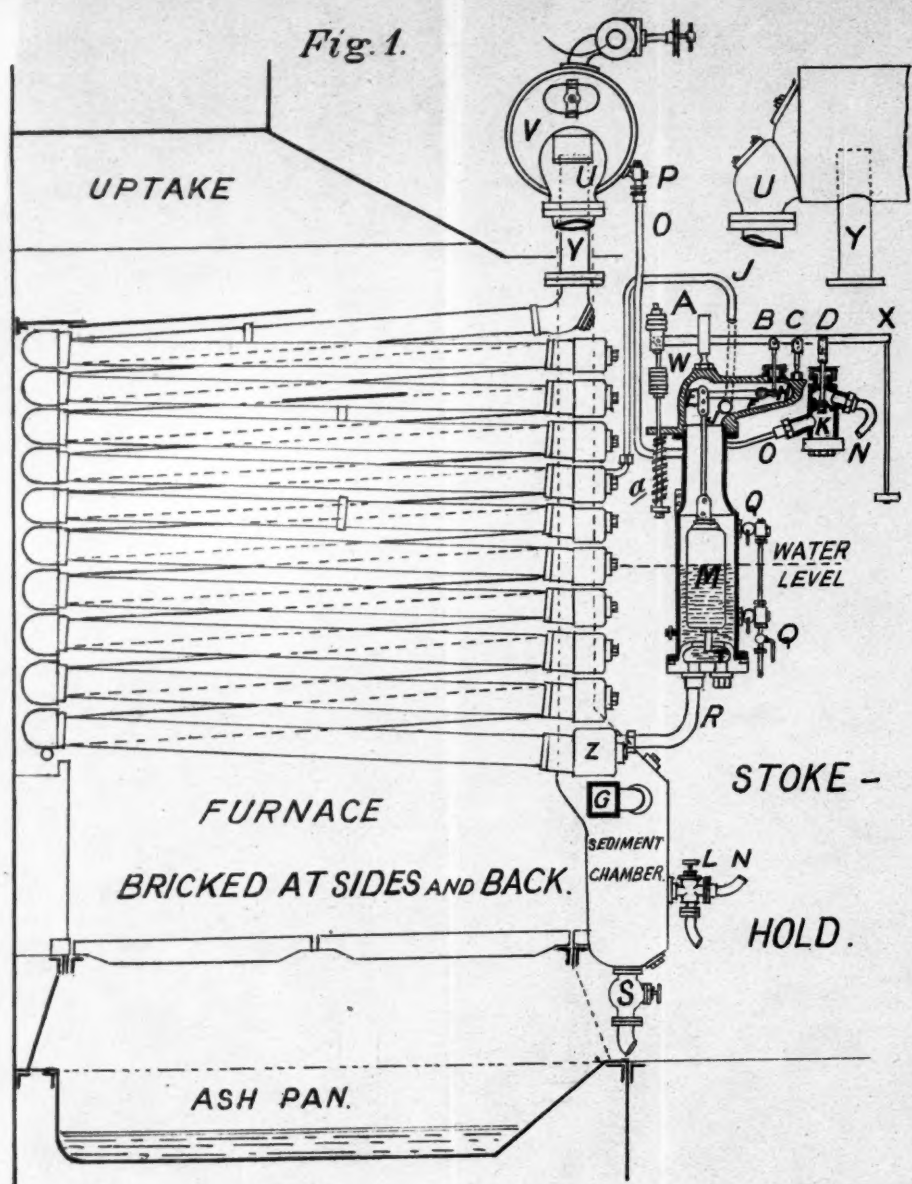
The valve is in equilibrium when the tension on the springs is balanced by the upward pressure on the valve. The difference in the area acted on by the reduced steam pressure, above and below the valve, is the area of the spindle *B*, the upper part of which is open to the atmosphere. From this it will be seen that if the pressure exceeds that for which the springs are adjusted, the valve will rise, and consequently tend to close itself. By careful adjustment, when the flow of steam is fairly constant through the valve there is very slight movement or oscillation. As there are no packing rings round the valve, there is a small leakage at all times, and particularly when the engines are stopped; consequently, it is convenient to have a small safety valve on the *reduced* steam pipe to take away any excess of pressure over that required. A small drain pipe connected to an automatic steam drain trap is also generally fitted to take away any water from the lower part of the steam chest.

By adding more springs to the frame, or by using the adjusting screw to put on more tension in the springs, the reduced pressure would be increased; and *vice versa*.

Economisers.—In conjunction with new naval boilers, economisers, a type of feed heater, are to be fitted. They consist of sets of tubes, placed in the uptakes to the funnel, through which the feed water passes on its way to the boiler. This is a method of utilising some of the heat which would otherwise be wasted up the funnel. They are still in their infancy, but their utility is so evident that an economy of 20 per cent gained by their application would not be astonishing. The uptake is the natural position for a feed heater theoretically, and any practical or mechanical objections should soon be overcome. The arrangement of the tubes and junction boxes of the Belleville economiser is very similar to the boiler, but, of course, smaller.

The Belleville boiler (without economiser) has up to the present shown no particular economy of coal over the ordinary boiler; this is due principally to inexperienced stoking. After the stokers have become accustomed to the large furnaces, enormous economy is gained. I have been constantly reminded of this during the past two years in training stokers with Thornycroft boilers, the facilities for stoking which are very similar to those in the Belleville. After a few days' practice, the same men have been able to obtain nearly double the H.P. with the same speed of fan and air pressure; this is, of course, more noticeable at moderate powers; at very high powers for short periods it is not so remarkable, but is still evident. The Belleville boiler is a very easy boiler to fire indifferently, but experience is absolutely necessary for economy.

Apart from all considerations of space, weight, and economy, it is in all its essential points an engineer's boiler, as it meets his requirement for facility of examination of all parts, both internally and externally. The comparatively moderate rate of combustion also appeals to the sea-going engineer, as he knows that he can get within reasonable limits of the maximum power for as long as required, and also with safety. As further experience is gained, better results will be obtained, and further improvements will be made, and eventually economy must follow.



THE FIRST FORCING OF THE KHAIBAR PASS, 1838-39.

By Major H. W. PEARSE, The East Surrey Regiment.

IN June, 1838, Mr. Macnaghten,¹ Lord Auckland's foreign secretary, obtained from Ranjit Singh, the dying ruler of the Punjab, his signature to an engagement of close alliance, known subsequently as the "Tripartite Treaty." This was practically a revival of the Treaty between Ranjit Singh and Shah Shuja, the exiled ruler of Afghanistan, with the addition of the British Government as a third party.

Shah Shuja, who had been for many years a resident in India, and a pensioner of the British Government, readily signed the treaty, by which he had everything to gain, and nothing (but his life) to lose, and the immediate result of the triple alliance was the invasion of Afghanistan.

The plan of campaign was as follows:—

The British Army and the contingent raised in India for Shah Shuja, and officered by Englishmen, were to proceed through Sind and enter Afghanistan by the Bolan and Khojak Passes. Little or no opposition was anticipated by Lord Auckland and his advisers, who had persuaded themselves that the restoration of Shah Shuja and the deposition of Dost Muhammad would be received with joy.

The share of the Sikh ruler, the third party to the Treaty, was, for obvious reasons, a limited one. Any invasion of Afghanistan by the hated Sikhs would have caused a bitter war of religion and revenge. It was, therefore, decided that Maharaja Ranjit Singh was to give the services of a contingent of Muhammadans, selected from every regiment in his army, and therefore a difficult body to weld into a serviceable shape. This contingent was to support a body of levies, to be formed from Afghans who might desert the standard of Dost Muhammad.

Finally Ranjit Singh engaged to give moral support to the undertaking by moving the main body of his army to the neighbourhood of

¹ This unfortunate official accompanied the British Army to Kabul, and was there assassinated by Dost Muhammad's son, Muhammad Abkar Khan, "the Wallace of Kabul."

Peshawar, and by proceeding there in person to superintend the formation of the contingent.

The command of the combined northern force was conferred nominally on Prince Timur, the heir-apparent of Shah Shuja; but it was understood that all operations that might be undertaken would be directed by an English political officer, Colonel Claude Martins Wade.

Claude Wade, born in 1794, was the son of Colonel Joseph Wade, of the Bengal Army, and godson of the famous soldier of fortune, Claude Martins. He had had a long and varied experience of Indian service, having served continuously in that country from the year 1809, when he started life as a cadet of fifteen. From the first, he showed exceptional talent and industry, and in February, 1823, was appointed "Political Assistant" at Ludhiana, when he was brought into close contact with Shuja-ul-Mulk, the dethroned King of Afghanistan. From this period also, for no less than seventeen years, Wade had charge of the political relations between the British Government and Maharaja Ranjit Singh, the ruler of the Punjab, and obtained great influence with that potentate.

The time had now come, however, for the sword to replace the pen, and for Wade to show himself a skilful organiser, and a bold and determined leader.

The first official intimation of the intended course of action of the force entrusted to him, dated July 23rd, 1838, runs thus:—"Captain¹ Wade is informed that he is to be placed in charge of our relations on the side of Peshawar. . . . It is the wish of the Government that the operations of the Shah's son should be confined in the first instance to gaining adherents to the cause of his father, and especially to conciliating the Khaibaris."

It would be wearisome to trace minutely the development of events, but it may suffice to say that Lord Auckland's Government gradually came to the decision that Wade's demonstration on the Khaibar side should be converted into an actual attack, with the object of hampering the defence of Dost Muhammad, and of preventing him from advancing freely to meet the Army of the Indus.

Towards the end of October, 1838, Dr. Lord, one of Macnaghten's political assistants, was sent to Peshawar to establish relations with various chiefs, whose acquaintance had been made by Sir Alexander Burnes during his travels. Lord, an enterprising traveller, a man of learning, and a gallant soldier, was furnished with letters from Burnes to these chiefs, and was attached to Wade's mission until it reached Kabul.

On December 29th, Wade was informed that "acquainted as he was, by frequent conferences with the Governor-General, of the views and opinions entertained by his lordship relative to the present position of affairs, it is not deemed necessary to furnish him with any detailed instructions for his guidance." He was to "make use of the Shahzada's presence in such mode as might seem to him best calculated to secure

¹ He had been promoted Major on the 28th June, 1838, but the *Gazette* had not arrived in India.

adherents to the Royal cause." He was given absolute discretion as to expenditure, though economy was enjoined on him.

Wade, who had been granted the rank of Lieut.-Colonel from September 28th, 1838, arrived at Peshawar on the 11th March, 1839, and, a few days later received further instructions in the shape of observations by the Governor-General on an open despatch from Mr. Macnaghten. "You are advised, in case of Dost Muhammad leaving Kabul to engage the allied Army when advancing on the capital, to proceed yourself, with the Shahzada and all the Mussulman troops you can collect, against Kabul; but his lordship is of opinion that, as the expediency of a measure of this decided character must depend upon circumstances, the existence of which cannot be predicately calculated upon beforehand, no instructions can be given that will prove as safe a guide for your conduct as your own prudence and sagacity."

Much more to the same effect follows, and on May 10th there is a similar letter pointing out the mischief that would be wrought by too much forwardness and also by undue caution. This letter concludes with an expression of Lord Auckland's hope that Colonel Wade might be able to overcome the obstacles that were to be expected on the road from Peshawar to Kabul, and to reach the capital simultaneously with the Army of the Indus.

Meanwhile, Wade and his assistants had not been idle. From the moment of his arrival at Peshawar, where he found all the Sikh preparations hopelessly in arrears, he and they had displayed unceasing energy and boundless resource. Undeterred by obstructions and disappointments without number, undaunted by the sickness and exhaustion that follow prolonged exertion in the Peshawar Valley, they laboured from March to July at the task of forming and disciplining a force that would face and capture the hitherto virgin Khaibar.

The "Orders" issued daily by Wade still exist, and form an interesting record of the gradual growth and organisation of the force, while they also bear witness to his military capacity.

Wade was extremely fortunate in regard to the officers who were detailed to assist him in his task. Of these, Dr. Lord has already been mentioned, and the after career of Mackeson,¹ who was also employed in a political capacity, is well known.

The services of a very small body of Regular troops of the Bengal Army were granted to Wade's mission, and Captains Ferris and Farmer, Lieutenants Cunningham,² Maule, and Barr, who accompanied these troops, all did excellent service in various capacities.

Much of the credit of the successful attack on the Khaibar must be given to Mackeson, who carried out Wade's orders with admirable courage and determination, and performed feats that our subsequent experiences in that unhappy region prove to be truly extraordinary.

¹ Afterwards Colonel Frederick Mackeson, C.B., assassinated in 1853, when Commissioner of Peshawar.

² Joseph Davey Cunningham, son of Allan Cunningham, and historian of the Sikhs. His promising career came to an untimely end.

Lieutenant Barr, the last-named officer of the mission, who belonged to the Bengal Artillery, published his diary under the title, "Journal of a March from Delhi to Peshawar, and from thence to Kabul," and in it gives a good idea of the materials upon which Colonel Wade and his assistants had to work.

"Most of the mornings and evenings were occupied in admitting volunteers into the service of the Shahzada, and so many Durani horsemen presented themselves to be enrolled, that it became necessary to select those only whose steeds and arms were of better than ordinary description. Several chiefs, who came for this purpose, attended by their clansmen, were fine specimens of the rude and predatory soldier, their manly and tall figures being generally enveloped in the folds of a crimson "choga," embroidered with gold, which, opening in front, displayed a "kamarband," studded with pistols and knives, or an arm protected by a steel gauntlet, which reached to the elbow and was terminated at the hand by a flexible glove of chain rings."

On the 14th April, 1839, three days after the arrival of General Ventura¹, from leave of absence in Europe, a mutiny broke out in the "Najib" battalion, which but too clearly showed how weak was the discipline of the Maharaja's levies. This battalion was commanded by Colonel Jacob Thomas, son of the gallant adventurer George Thomas, who from being a sailor before the mast rose to become an independent sovereign. Jacob Thomas had not inherited the ability or strength of character of his father, and on this occasion his men turned him and his adjutant out of their camp, and declared they would have nothing more to do with either of them.

In the month of May, a battalion of Gurkhas also mutinied, because General Ventura had placed their adjutant under arrest. The adjutant being popular with them, they demanded his release, which the General refused. Seeing that he was prepared to meet force with force, the Gurkhas returned to their tents, which they presently struck, and, colours flying and band playing, marched out of camp. The iron hand of the old Lion of Lahore was relaxing, and the mutineers were allowed to remain at Peshawar and avoid the march to Kabul.

The fact is that all the Sikh troops had a great dread of campaigning in the Khaibar region. General Avitabile, at this time Governor of Peshawar, used to say that the word Khaibar gave the Sikhs cholera.

Of such material it was Wade's task to form a force sufficiently trustworthy for an advance into the dreaded Khaibar, there to meet on their own ground those of the warlike tribes who were unwilling or afraid to join the Royal cause.

As for the Afghan levies, but little training could be given them. In Wade's words:—"However desirable it might be to bring these levies into a tolerably efficient state of discipline, neither time nor the habits of the people admit of it. The officers in charge will, therefore, merely form

¹ General Ventura was an Italian officer, who had served Napoleon. He was one of Ranjit Singh's most trusted and faithful servants, and was deputed at this time by the dying Maharaja to represent him at Peshawar.

them into ranks, two deep; teach them the facings and the manner of marching in column and forming line."

A letter from Cunningham, who acted as Wade's staff officer to his chief, relating to some correspondence with Captain Farmer, who at the time was in command of the camp, gives some insight into the management of the force, and also gives an amusing indication of the character of a brave but somewhat eccentric officer.

"June 4th, 1839.

"MY DEAR COLONEL,

"I wrote to Farmer about his parade-ground, mentioning, among other reasons for not beginning upon it, that you considered our stay here as uncertain. I said, in conclusion, that you would be glad if he could find an opportunity of moving the troops about a bit in the vicinity of the camp, in order that they might be the better fitted for any arduous service in the rugged and inhospitable hills before us—a style which precisely suits his 'Ercles vein.

"Sincerely yours,

"J. D. CUNNINGHAM."

When the starchy ideas of the period regarding drill and discipline are considered, it may be considered fortunate that an officer of Wade's stamp was selected for the command of a hastily-raised and organised force. He had been too long free from the bonds of red-tape to cling to the parade drill which ninety-nine men out of a hundred would in those days have inflicted on the Sikh drafts and Afghan levies, and it was with such practical training as is indicated in Cunningham's letter that Wade and his eleven assistants occupied their time.

They may justly have contemplated with pride the result of their labours when, on July 19th, 1839, the order to advance was given by Wade to a small army numbering between nine and ten thousand men.

Their composition was as follows:—

Regular troops of the Bengal Army—strength, 380;

Sikh contingent (with ten guns)—strength, 5,000 to 6,000;

Afghan levies—strength, about 4,000.

Among the last named were included about 100 Multanis, brought with him from that province by Lieutenant Mackeson; and these men did more than their share of the fighting.

On the day of the advance, General Ventura, prevented by the intrigues which followed the death of Ranjit Singh from leaving Punjab, handed over command of the Sikh contingent to Colonel Shaik Basawan, who proved a brave and trustworthy, as well as a capable, commander; Ventura's aide-de-camp, a French officer, Captain August Lafont, becoming Staff officer for the contingent to Colonel Wade.

The diplomatic action of Wade and Lord had secured the neutrality of many of the tribes, and had contributed to prevent Abkar Khan from moving forward to Ali Masjid. This chief, the ablest and bravest of Dost Muhammad's sons, remained inactive at Jalalabad until, on July

23rd, immediately after the fall of Ghuzni, he was recalled to Kabul by his father.

Meanwhile, Wade was slowly but surely advancing on Ali Masjid, the key of the Khaibar. On July 22nd a strong force, under his personal command, seized the heights about four miles from that fort, Captain Ferris' regiment of Afghans guarding the flanks during the advance. At the same time, Mackeson, with his Multanis and a party of Sikhs, made a converging march, but was attacked so fiercely by the Afridis that the Sikhs fled, and the Multanis were sore pressed.

Hastily throwing up a small breastwork, Mackeson maintained with difficulty the unequal contest, for the enemy outnumbered him greatly, and were, at least, equally well armed. Though reinforced by Captain Ferris and his regiment, and eventually aided by Lieutenant Barr with a mortar, this force had a narrow escape from disaster. Ammunition ran short, and Ferris' levy became unsteady.

Among the letters and notes preserved by Wade¹ are two written very hastily in pencil, on this occasion, on rough "country paper"; the first runs thus:—

"MY DEAR WADE,

"I have just received your note. I will assist you as far as in my power; but the distance is, I fear, too great for my "Jezails" to reach the party on the opposite side of the hill.

"Yours very truly,

"F. MACKESON."

The second note, written during the Afridi attack, runs:—

"MY DEAR WADE,

"I have sent for ammunition, but at present neither my own men nor Captain Lafont's men, the "Najibs," have any, nor have the Kohistanis; how are we to defend our post?

"Yours, F. M."

Eventually, Mackeson obtained reinforcements of men and ammunition from Wade's position, and he and Ferris were enabled to hold their ground.

To those acquainted with Afridi habits it will cause no surprise to learn that the baggage of the Mission and troops suffered considerably during the action, among the articles carried off being the Shahzada's throne (!) and one of Colonel Wade's large tents.

The 23rd July was employed by Wade in improving his position on the heights by moving further to the front in certain places, and in strengthening his communications. On the 24th he advanced yet further.

¹ There are several similar messages, sent during the operations; and those above are published, not because of any special value that they possess, but in the hope that among the readers of this JOURNAL there may be some who possess similar relics of more important campaigns. It is greatly to be hoped that such written orders, memoranda, or notes may be brought to light, for their historical value would be very great; probably, indeed, more than one page of history would have to be re-written were such neglected evidence (of which much must exist) laid before those who could make proper use of it.

Captain Ferris had been sent back to Peshawar to bring up fresh supplies, and the force was, therefore, weakened by the strength of his escort. The operations were, however, successful, and the opposition of the enemy much less spirited than on the 22nd. A 6-pounder of the Sikh artillery was carried by an elephant, under Lieutenant Barr's direction, to the summit of a ridge, and fire from it was kept up at intervals throughout the day.

The force under Mackeson, who was assisted by Lieutenant Maule, advanced along another range, where it had some smart fighting. Eventually the camp of the main body was brought forward to ground below the village of Lal Chini, and Lieutenants Dowson and Rattray occupied the heights on either flank with small bodies of infantry. Mackeson also held the advanced position that he had taken up.

On the 25th July the heights immediately before Fort Ali Masjid were attacked, and as it was evident that the opposition would be strenuous, two companies of the Regular infantry and a large force of the Sikh troops under their brigadier, Shaikh Basawan, were employed in addition to the Afghan levies.

Captain Farmer commanded the troops which acted with the Sikhs, and the combined force drove back the Afridi defenders from their original position to the summit of a lofty and precipitous hill, whence infantry fire failed to dislodge them.

The Khaibaris, in leed, made a bold counter-stroke, and descended from their breastwork with the intention of attacking Captain Farmer's left, but this attempt was frustrated by artillery fire, and the counter-stroke defeated.

Colonel Wade then directed his guns on a cantonment occupied by the Afghan troops, and directed the Sikhs to charge the buildings, to plunder them, and to retreat to the shelter of his force, bringing their spoil with them.

This undertaking was, however, respectfully declined by the Sikhs, who explained that it was contrary to the traditions of their army to retire from any position that they had once taken up.

They were quite ready to advance and die if the Colonel desired it, but to retire was out of the question.

Fighting continued all day, without any material advantage to either side, and the losses were considerable, those of Colonel Wade's force amounting to about 180 killed and wounded during the four days' operations.

When night fell, a party from the position commanded by Captain Farmer was silently pushed forward to rush the fort, but, to their surprise, found it vacated. Captain Ferris' force had also advanced, and was ready to join in the intended assault at daylight. The Afridi defenders of the Khaibar Pass had held their ground well against a determined and sustained attack, but they failed to deliver any effective counter-attack, though the advantage of position lay with them. It may be assumed that they were disheartened by the knowledge that Ghazni had fallen, and that the Afghan troops under Akbar Khan had

withdrawn from Jalalabad to Kabul. It must have been clear to them that the Royal cause was, for the moment at any rate, triumphant, and that it was high time to come to terms with the winning side.

Wade's force, much improved by its short and successful experience of hill fighting on scientific principles, now moved on by easy stages to Kabul. The Afghan levies were distributed along the road in suitable posts, it being considered undesirable to take them to the capital.

On September 3rd, Colonel Wade brought his mission to a successful close, as on that day Shahzada Timur entered Kabul. On the 5th of the following month the Sikh contingent began their return journey to India.

Lord Auckland, a warmly appreciative master, thus commented on the performance of Wade and his officers, in a private letter dated

"Simla, August 21st, 1839.

"MY DEAR SIR,

"I have been greatly occupied of late, and you must not think because I have not written to you that I have not felt a warm interest in all your proceedings. I have rejoiced at your success as influencing that of the great enterprise in which we are engaged, and have rejoiced at it also on your own account. It realises the hope which I had encouraged that your position at Peshawar, though irksome and doubtful, and often discouraging, was one of real importance, and might bring honour to yourself and enable you to render real service to the State. I cannot but applaud the manner in which the defences and difficulties of the Pass have been mastered, and it will have a good effect that they have been mastered rather by lead and iron than by gold and silver. Your little band of British officers seem most admirably to have seconded you, and I shall presently have to ask you to present a sword in my name to your Sikh Colonel.

"Most truly, dear Sir,

"(Signed) AUCKLAND."

Three months later, Colonel Wade received an intimation from Sir John Hobhouse that the Queen had been pleased to confer the honour of Knighthood upon him, and that he would also receive the Companionship of the Order of the Bath "in token of Her Majesty's approbation of his conduct and services during the late expedition in Afghanistan."

Unfortunately, Sir Claude Wade's despatch to the Governor-General, describing his operations in the Khaibar Pass, was never published. It is hard to say why this was so, but some unfriendly influence was presumably at work.

One thing is certain, that Wade's achievement, both from a military and a political point of view, failed to receive due recognition. At the time of its performance public attention was concentrated on the movements of the "Army of the Indus," and the attention of historians has since been mainly devoted to greater and more dramatic episodes of the

¹ This letter, with a mass of correspondence relating to Sir Claude Wade's diplomatic career, is in possession of Mr. Claude F. Wade, his only son.

Afghan War. The capture of Ghanzi, the occupation of Kabul, the destruction of Elphinstone's army, the brilliant defence of Jalalabad, the advance from Peshawar of Sir George Pollock, the "retirement of General Nott from Kandahar by way of Kabul,"—all these stirring incidents fire the imagination of the writers and readers, and have thrown into the shade achievements that deserve to be remembered with admiration.

Thus it is that Sir Claude Wade's bold and hazardous operations in the Khaibar have been robbed of the measure of fame that is their due.

“CONVERSATIONS ON CAVALRY.”

TO those interested in the efficiency, development, or training of our cavalry, the translation which has recently appeared of Prince Hohenlohe's "Gespräche über Reiterei" will be most welcome. The modest title of the work, "Conversations on Cavalry," is, perhaps, misleading, and almost seems to suggest merely a gossiping record of small talk on cavalry exploits. The matter discussed, however, is the reverse of trivial. All the varying grades of efficiency through which the Prussian cavalry passed, during some hundred and fifty years, are touched upon, the causes of the success or failure of the arm at different periods are carefully obtained; and finally, the fundamental principles, on which the training of an efficient cavalry depends, are indicated. Conclusions, too, are only arrived at after minute investigation, and close argument, the great value of which will be duly appreciated inasmuch as the discussions took place between two officers of vast practical experience, of tried efficiency, and of deep reading, viz., Prince Kraft zu Hohenlohe and General von Senfft Pilsach, who commanded the 23rd Brigade of Cavalry in 1870-71. In every chapter evidence is given of the evils which a few years of peace may accomplish even in the most efficient cavalry, unless *the object to be attained*, is well understood, and constantly kept in view. Frederick the Great, we are told, took over a cavalry, which, owing to the rust of peace, had come to view the Riding School as its supreme object: "lançades" and "caricoling" were its customary exercises. Its defeat at Mollwitz at the hands of the Austrian cavalry was the natural result of thus mistaking the "means" for the "end." The Great King, though no great horseman himself, now awoke to the fact that unless his cavalry could manœuvre in rough ground, charge with cohesion, rally quickly, and be always under control of its leaders, it was practically useless as an instrument in the fight. The methods of training which he introduced, and which resulted in producing the best cavalry Europe has yet seen, are all carefully explained in these "Conversations," and will well repay careful study by anyone interested in the training of cavalry. That these methods were sound is proved, not only by the deeds which the cavalry accomplished in war, but also by the fact that the system of training adopted in the German cavalry, since the experiences of 1866 and 1870 showed up the deficiencies of the arm, is modelled on Frederick's system. Each year, too, seems to bring the modern practice of instruction more in accord with the teachings of the Great King.

* By Kraft, Prinz zu Hohenlohe-Ingelfingen. 1886. Translated from the German by Lieutenant C. Reichmann, U.S. Cavalry; and edited by Captain F. N. Maude, late R.E. London, 1896.

Yet it is extraordinary to see how quickly a cavalry of such excellence as that of Frederick could go to ruin. Even so soon as 1806 "many regiments no longer came up to the very lowest standard required of a cavalry regiment by Frederick," and, for the sake of economy in the cost of supervision, the arm was dispersed amongst the infantry.

No doubt economy for the moment resulted; but at what a price! The cavalry ceased to be really trained, wrong notions as to its duties in war arose, and a cavalry leader became a thing of the past. Is it to be wondered at then, that when tried in the practical test of the battle-field it was found to be wanting? In a word, Jena was the result of all this parsimony. Jena! the memory of which even Sedan has scarcely served to extinguish in some parts of Prussia.

What a lesson is here put before the people of this country! Niggardliness, and untimely economy in the most essential requirements of the arm in peace, has been the recognised policy in the past, and, up to a very recent date, has been persisted in by those responsible for the maintenance of an efficient Army.

As regards the past, the following extract is quoted from a writer, who, in 1827, referring to the fact that in the peace of 1746 and previous to the Seven Years' War the Prussian troops were regularly assembled each year and in the fields of peace were taught "the grand evolutions and manœuvres of war," recommended that the British cavalry should similarly be trained.

"This practical system of drill, would not," he wrote, "certainly be so easy to accomplish in England where every John Bull may stand at his gate, and not only refuse you admittance, but prosecute and convict you, if you dare to insist upon it; however, a much more instructive system might be adopted than the one at present pursued. Galloping through Dundas's manœuvres on Hounslow heath can never teach dragoons how to oppose an enemy, to cover a retreat, to patrol a country, to take advantage of ground, to support infantry, to protect artillery, etc., etc. No sort of resemblance to any of the movements or operations likely to occur in war are ever attempted by us. . . . Really, unless a young cornet is possessed with a considerable portion of curiosity, he is now led to believe that changing quarters is going on service; that being on guard is being on piquet; and that a review at Hounslow is a general action!

"All this may contain 'The pride, and pomp, and pageantry of war,' but it certainly bears no resemblance to those duties of a *military* life, which are of more difficult acquirement, and far more essential."

And again the same writer informs us that, "The deficiency of good cavalry officers in the British Army is much to be lamented, and *may be attributed to the defective means employed to form them.* . . . It is not to be supposed that the routine of parades, or the mechanical practice of drill, though carried to the greatest extent and perfection, can ever enable an officer to command a regiment of cavalry, or even a smaller body, with any advantage. The circumscribed limits of field-day tactics call for no greater exertion of intellect than *may be reasonably expected from any private dragoon who has learned to know his right hand from his left;*

and the extent of instruction being thus confined, induces the greater part to believe that further information is unnecessary. Hence arises that complacency in ignorance, and that stagnation of military talent, which distinguish so many of our cavalry officers, the greater part of whom would, no doubt, if a *proper mode* of instruction was adopted, become conspicuous in their profession.

"The English service in time of peace affords little means for the improvement of a cavalry officer; at most, he can but accomplish the knowledge of Dundas's manœuvres; and when perfected in the practice of these, he looks in vain for the application."

The above picture of the condition of our cavalry half a century ago is gloomy indeed; but will any one acquainted with our cavalry of to-day maintain that the conditions under which it is trained are more favourable than those described above? Although over sixty years have passed since the extract above quoted was penned, John Bull is still able "to stand at his gate and refuse you admittance," and is likely long to remain able to do so, until perhaps some Jena awakes him to the fact that money, given even in unlimited sums, will not at the twelfth hour procure him an efficient Army for war.

But a Manœuvre Act will avail us little, if our cavalry pursues wrong methods in training men and horses. The mechanical drill and routine exercises of the twenties have much to answer for, though it is open to question whether, with the low establishment of horses which has been maintained in our regiments for many years, any efficient system of training was possible.

However this may be, the fact remains that horses of three, four, and five years of age are found, as trained horses, in the ranks of our squadrons. The majority of our horses of eight to twelve years of age are really "screws," and, compared with the horses in a German squadron, do not last so long. Lastly, looked at in the field, our troop horses lack that freedom of movement and evenness of gait which are the characteristics of well-broken troopers. In short, our troop horses are badly trained. The reason of it seems to be due to the necessity for hurrying remounts into the ranks before they are fit for severe work. The "Conversations" tell us that the same causes produced like results, viz., *degeneracy* in the case of the Prussian cavalry, *inefficiency* for war in ours.

Indeed, anyone acquainted with the system of training as a whole, which existed in our cavalry until the present Inspector-General was appointed, must acknowledge that our methods resembled very closely those of the degenerate period of the Prussian cavalry. Recently, we have learnt to know that a well-executed charge and ability to rally quickly should be the aim of our instruction in the manœuvre field. But it is really only yesterday that many hours were daily wasted in our regiments in practising complicated figures in the riding school; in fact, the chief work of a regiment was in the riding school; for was not its efficiency for war judged by the manner their "circus tricks" were performed? The horses, too, from constant repetition, went through their tasks like "performing dogs," regardless of whether the rider

applied the proper "aids" or not. In a word, "circus" riding in place of "campaign" riding, was what was aimed at, and riding school, instead of being looked upon as the *means*, became the *end* of our instruction. Moreover, it is an open secret that as long as H.R.H. the late Commander-in-Chief sat in his chair of office, the hand of the practical reformer was forbidden to touch the "double ride"; so that it was only last year (1896) that the New Drill Book authorised its discontinuance. It is too soon yet to hope for a marked improvement to be manifest: the evils of the old system are still predominant. Many horses have short, cramped action, and lack the long, easy paces necessary alike for the execution of a close charge and for supporting the fatigues of a campaign; alignment at the halt is difficult, for the horses do not stand square in the ranks; on the move, cohesion at the faster paces is impossible, for horses have been so tormented with "passaging" and "shouldering" in the school, that they have acquired the habit of going like crabs and are perpetually changing legs; lastly, at the gallop, horses get out of hand—the worst fault of all! for in the opinion of von Pilsach it is quite a matter of accident what direction a body of cavalry, which is liable to get out of hand, will take. The case of the Prussian cavalry riding over Blücher at Auerstadt, when he tried to rally it, is a case in point, and von Pilsach remarks, with reference to it, that "the fact of cavalry being able to bolt at all, is the best proof of its decline, particularly in the riding efficiency of the man and the training of the horse."

Destructive criticism is at all times easy; the real difficulty consists in finding a remedy. In this case, however, we are fortunate, for history shows us the results obtained by Frederick's system in the past; while in the present, the result of the same system may be seen on any cavalry drill-ground in Germany, where it is tried, too, on raw material much less suited for cavalry work than are the recruits and remounts of England. These "Conversations" enable us to get a close insight into the details of Frederick's system, and how it has been developed.

The high state of efficiency alike of the Prussian cavalry of Frederick the Great as well as of the German cavalry of to-day, is due mainly to the great attention which is paid to teaching the *individual* to ride in the open country; "campaign riding," as the translator of the present volume calls it, is opposed to "school" riding. The school was, and is, considered as a necessary evil, as a "means" to the end of acquiring campaign riding. But *the result only*, viz., riding in the open, is inspected.

On the other hand, it is required that school riding, or *haute école*, must be the basis of all riding. This style of riding is taught, therefore, only at the riding establishment, and to those who have been selected to become riding instructors on account of their special aptitude for riding.

General von Pilsach's remarks on the German experiences of horses trained at dépôts, are especially worthy of consideration at the present time, when it is proposed to start a similar system in the British cavalry. He is of opinion that horses can only be well trained when the trainer has a personal interest in his remounts. Where is this interest to come from, when the horses are transferred as soon as they are trained?

There is certainly much to be said in favour of making squadron officers responsible for the training of their own remounts and recruits. Indeed, it is only when one comes to teach, that one appreciates the real difficulties which stand in the way of producing a perfect squadron.

At the same time it is unnecessary for the supreme commanders of the Army personally to know the details of cavalry training, or even to be good riders, provided they know how much they must and can require of the cavalry. This was the case both of Frederick and of Napoleon. Yet their cavalries will always remain famous in the annals of war.

On the other hand, cavalry leaders who are responsible for the training of the arm must ever remember *the requirements of war*, and base their methods upon that alone, otherwise the rust of peace will overcome us. Keeness and good material by themselves are not sufficient to make a good cavalry; sound principles must be adhered to in its training. Defeat taught Frederick the necessity of demanding from his cavalry long, vehement, closed charges over all kinds of ground.

So far we have been spared so rude a lesson, and for the moment the British cavalry is fortunate in having at its head an Inspecting-General who has grasped the teachings of Frederick. Many years, however, must pass before his principles penetrate into the flesh and blood of our cavalry. It is thus possible that the teachings of the twenties may again revive. The only hope is in the development of *leaders* to perpetuate the work which is just beginning in our mounted arm. For it must be recollected that talent for commanding cavalry comes like the splendour of the comet, to dazzle, and disappear. When, therefore, the faintest glimmering of its light appears visible in the military hemisphere, we should hail its approach and avail ourselves of its lustre.

In assisting the development of such leaders, these "Conversations" appear to us invaluable. Progress is attainable if only we adopt correct principles, and constantly act upon them instead of groping about at random. We must, moreover, recognise clearly the defects that still cling to us, observe in what we fail, and not be penetrated with a belief in our own excellence.

In conclusion, we can most cordially recommend this remarkable work to all officers of cavalry, both in England and in India; and we may add that both the translator and the editor have done their work most admirably.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made : Captains—W. H. May to "Victory" as Flag-Captain at Portsmouth; E. H. Bayley to "Pelorus"; H. Leab to "Katoomba"; the Hon. Assheton G. Curzon Howe, C.B., to "Britannia"; F. H. Henderson to "Eclipse" and then "Bonaventure"; F. S. Inglefield to "Eclipse"; A. C. Clarke to "Edgar" and then "Undaunted"; J. S. Halifax to "Edgar."

The first-class cruiser "Edgar" is commissioned to take out a new crew for the first-class armoured cruiser "Undaunted" in China, which ship will pay off and recommission at Hong-Kong. The new second-class cruiser "Eclipse" is commissioned to take the place of the second-class cruiser "Bonaventure" as flag-ship on the East Indian Station, and the third-class cruiser "Melpomene" is commissioned to take the place of her sister-ship the "Marathon" in the East Indies. The third-class cruiser "Magicienne" is to take the place of the old wooden frigate "Dædalus" as drill-ship for Naval Reserve at Bristol; she is the third modern cruiser now employed on this service, her sister-ships the "Medea" and "Medusa" being stationed at Southampton and Shields respectively. The first-class battle-ship "Royal Oak" was commissioned on the 9th ult. for the Mediterranean by the officers and crew of the "Collingwood" and left on the 24th ult. for her station; the "Collingwood" was commissioned also on the 9th ult. by the officers and crew of the "Dreadnought" as first-reserve ship at Bantry, thus adding another first-class battle-ship to the fleet in commission in home waters. As showing the enormous advantages accruing from the new system of sending the foreign reliefs out in modern ships of war, instead of in troop-ships, as was formerly the case, it is as well to note that there are now three first-class cruisers, the "Edgar," "Endymion," and "Royal Arthur," and two second-class, the "Minerva" and "Flora," engaged on relief duty, but available for service anywhere, should they be required.

The new first-class battle-ship "Mars" has completed her steam trials satisfactorily. The eight hours' natural-draught trial was carried out on the 18th ult. in the English Channel between St. Catherine's and Beachy Head. On the run to the eastward the wind was on the quarter, and on the run to the westward it was ahead and abeam, and though it somewhat affected the speed of the ship there was only slight pitching or rolling. The draught of water forward was 24 feet and aft 26 feet; the steam in boilers was 149·8 lbs., while the vacuum was 26·2 inches starboard and 26·6 inches port. The revolutions per minute were 97·57 starboard and 98·4 port, and the collective I.H.P. was 10,159, which was produced with a mean air pressure of 0·21 inch, giving the ship a speed by patent log of 15·96 knots. The results of the four hours' forced-draught trial were as follows :—The draught of water was 24 feet forward and 26 feet aft, and the steam in boilers 146·5 lbs., while the vacuum was 26·5 inches starboard and 26·7 inches port. There was a mean air pressure of 0·78 inch, and a collective H.P. of 12,434 was realised, with 103·9 revolutions starboard and 104·5 port. The speed as recorded by patent log, was 17·7 knots. The thirty hours' coal consumption trial took place in the English Channel between St. Catherine's

and the Start, and, though there was a fairly smooth sea, the wind was blowing half a gale, but the ship was perfectly steady. The draught of water was 24 feet 2 inches forward and 26 feet aft, and the steam in boilers 139·4 lbs., the vacuum being 26·4 inches starboard and 26·3 inches port, with 83·74 revolutions starboard and 83·44 port. The engines worked up to 6,028 I.H.P., giving the ship by patent log a speed of 14·4 knots. The coal consumption was 1·94 lbs. per I.H.P. per hour. The new first-class battle-ship "Jupiter" has also completed her steam trials satisfactorily, with the following results:—On the eight hours' natural-draught trial a speed of 15·8 knots was obtained. The steam pressure in boilers was 148 lbs. per square inch, the mean I.H.P. was 5,057 starboard, and 5,201 port, making a total of 10,258. On the four hours' forced-draught trial the speed was 18·4 knots, the steam pressure in boilers was 150 lbs. per square inch, while the I.H.P. developed was 6,127 starboard, and 6,348 port, giving a total of 12,475. The draught of water was 25 feet 6 inches forward and 26 feet 2½ inches aft. On the thirty hours' coal consumption trials the speed was 14·1 knots, with a steam pressure of 146 lbs. per square inch; the mean I.H.P. was 3,116 starboard and 3,077 port, total 6,193. The draught of water was 24 feet 6 inches forward and 24 feet 9 inches aft. The coal consumption was 1·51 lbs. per I.H.P. per hour. The starting, turning, anchor, and other trials were also satisfactory. The weather was boisterous during the greater part of the time.

The new second-class cruiser "Isis" has completed her trials successfully; during the eight hours' natural-draught trials the engines worked smoothly, and an average speed of 19·8 knots was obtained. This is 1·3 knots more than the contract demanded. The official results of the trial were:—Draught of water, 19 feet 10 inches forward; 21 feet 8 inches aft; speed of ship, 19·8 knots; steam pressure in boilers, 139 lbs. per square inch; air pressure in stokeholds, 41; vacuum in condensers, 27·7 starboard, 28·5 port; revolutions per minute, 134·6 starboard, 137·7 port; mean I.H.P., 4,121 starboard, 4,087 port—total, 8,208. The four hours' forced-draught trials also proved satisfactory. The speed obtained was 21·1 knots, while the H.P. developed was 9,840, or 240 in excess of the contract. The steam pressure in boilers was 151 lbs. per square inch, and the revolutions per minute were 143·4 starboard, and 146·5 port. The results of the thirty hours' coal consumption trials were as under:—Draught of water forward, 19 feet 4 inches, aft, 21 feet 3 inches; speed of ship, 17·5 knots; steam pressure in boilers, 145 lbs. per square inch; vacuum in condensers, 26·8 starboard, 26·5 port; revolutions per minute, 116·5 starboard, 119·2 port; mean I.H.P., 2,441 starboard, 2,484 port—total, 4,925; consumption of coal per I.H.P. per hour, 1·60 lbs.—total, 236,548 lbs. Throughout the trials the machinery gave every satisfaction. The first-class cruiser "Edgar" had a satisfactory two hours' steam trial after her recent refit. The mean results were:—Steam, 129 lbs.; vacuum—starboard, 26·5 inches, port 27·5 inches; revolutions—starboard 98·4, port 98·1; I.H.P.—starboard 5,190, port 5,177; total 10,367; air pressure, ½ inch; speed, 20·1 knots. As showing what good steamers all the cruisers of this type are, in the recent full-speed trial under natural draught of the West Indian Squadron between St. Thomas and Trinidad, the "Crescent," the flag-ship of Vice-Admiral Erskine, made a speed of 19·6 knots.

The details of the full-power trials of the new torpedo-boat destroyer "Fame," built by Messrs. Thornycroft, have been officially reported as follows:—Draught of water, forward, 5 feet 1½ inches, aft, 7 feet 1 inch; speed, 30·155 knots; steam pressure in boilers, 205 lbs. per square inch; air pressure in stokeholds, 4 inches; vacuum in condensers, 26·1 starboard, 26·4 port; revolutions per minute, 394·8 starboard, 393·1 port; mean I.H.P., 2,914 starboard, 2,980 port—total 5,894. The new torpedo-boat destroyer "Star," built and engined by Palmer's Shipbuilding Company, has also undergone her steam

trials by the contractors before delivery. She was run for three consecutive hours at full speed, the average being 31.05 knots. The "Whiting" and "Bat," also built by Palmer's Company, are almost ready for their trials. All former records of sea-steaming are to be eclipsed by a torpedo-boat destroyer in course of construction for the Admiralty by Laird Bros., of Birkenhead. The vessel is to be named the "Express," and is one of fifteen built and building by the same firm. She is being constructed for a speed of 33 knots, and will be the fastest vessel afloat, the remaining vessels of this type building by the same firm being guaranteed for a 30-knot speed. Messrs. Thornycroft and Co. are building a destroyer—the "Albatross"—from which they propose to get a speed of 32 knots; whilst the "Arab," building by Messrs. J. and G. Thomson, of Glasgow, has been designed for a similar speed. The "Express" is a vessel of similar dimensions to the "Virago," also built at Birkenhead, which recently attained a mean speed of 30½ knots on a three hours' trial. The "Virago" has engines capable of developing 6,000-I.H.P., and this power was slightly exceeded when the vessel attained her 30½ knot-speed. The "Express," however, is to be supplied with engines capable of attaining 10,000-I.H.P., a power greater by 2,500 than will be required to give the "Albatross" a speed of 32 knots. The engine power of the "Express" will be better understood when it is stated that with a displacement of only about 350 tons she will be able to develop the same engine power as the new battle-ship "Renown," which has a displacement of 12,350 tons. The "Express's" armament will consist of a 12-pounder Q.F. gun, five 6 and 3-pounder Q.F. guns, and two Whitehead torpedo-tubes.

Two new first-class cruisers, the "Niobe" and the "Europa," have been successfully launched, the first-named on the 20th February at Barrow-in-Furness, and the second from Messrs. Thomson's Yard at Clydebank on the 20th ult. They are of a class of eight similar vessels building for the British Navy, and six of which are in the hands of private firms. The names of those under construction in private establishments are the "Niobe" and "Amphitrite," at Barrow; "Diamem" and "Ariadne," at Govan; and "Europa" and "Argonaut," at Clydebank. The other two, the "Andromeda" and the "Spartiate," are being built at Pembroke. The dimensions of these ships are as follows:—Length, 435 feet; beam, 69 feet, and a displacement of 11,000 tons on a mean draught of water of 25 feet 3 inches. The armoured deck is 4 inches thick and runs right fore and aft the whole length of the ship. The hull is built of Siemens steel, and the heavy external framing of the ends, stern, sternpost, propeller brackets and rudder frame are in phosphor bronze-castings. The armament will consist of sixteen 6-inch Q.F. guns, which are to be of greater length than those hitherto mounted on British cruisers, in order that the time during which the expansive force of the powder acts on the projectile may be increased. Of these sixteen guns twelve will be mounted in casements on the broadsides, two will be mounted at the stern, and two on the fore-castle. In the arrangement of the armament due consideration has been given to the importance of bow fire, and six of the 6-inch guns are arranged to fire direct ahead. Each weapon is provided with a separate electric hoist for ammunition, cased in nickel steel, 2 inches thick. The total weight of shot fired from the main armament is estimated at 11,200 lbs. per minute. The auxiliary armament consists of twelve 12-pounder Q.F. guns, two 12-pounder for field service, and eight Maxim machine guns. In addition the hull is pierced for three torpedo discharge tubes, two submerged, one on either broadside, while the third is situated above water at the stern. The propelling machinery consists of two sets of triple-expansion engines, capable of developing upwards of 16,500-H.P. There are four cylinders for each set of engines, the diameters being one of 34 inches, one of 55½ inches, and two of 64 inches, with a common stroke of 48 inches. The designed revolutions are 110 and the estimated speed 20½ knots. Steam is supplied from thirty Belleville water,

tube boilers, and the products of combustion will be carried away through four funnels. The machinery and boilers are protected not only by the protective steel deck, but also by the coal bunkers, which are arranged along each side of the vessel. The normal coal capacity is 1,000 tons, but this may be increased in case of emergency by a similar amount stowed above the protective deck, the 2,000 tons being more than sufficient for a radius of action of 10,000 nautical miles at a reduced speed of 10 knots. The hulls are sheathed with 4-inch teak to a height of about 4 feet above the normal load water-line, to take the final sheathing of sheet copper.

It has been decided to arm the new second-class cruisers "Hermes," "High-flyer," and "Hyacinth," which are now being built, with more powerful guns than was intended when the vessels were originally designed. It was at first arranged that they should have five 6-inch, six 4.7-inch, and sixteen smaller Q.F. guns. Under the new order they will each have eleven 6-inch, nine 12-pounder, and six 3-pounder Q.F. guns.

Want of space prevented us last month giving details of the gun trials of the new first-class cruiser "Terrible," which have been successfully carried out. The chief interest, however, lay in trying the mountings of the two 9.2-inch guns, one of which is carried forward and the other aft. These wire guns are of the Mark VIII. pattern, and are carried on the Mark IV. pattern central pivot mounting, which is the latest invention of the kind at Woolwich, and it is the first time that the electric form of motor has been exclusively adopted, though the work may be done by manual labour as an alternative. The motor is controlled by a patent liquid brake, actuated by turning a hand-wheel. By turning the latter the brake action is entirely taken off or put on, the same hand-wheel actuating the switch. Thus, when the gun requires many degrees of training, the hand-wheel is at once set hard over, and the mounting commences to train at full speed. As the sights approach the target the hand-wheel is turned back, slowing down the motion. When, however, the sights are nearly on the target in the first instance, the hand-wheel is given only a turn sufficient to start the motor at slow speed. The gun is mounted on a barbette and protected by a shield, and both barbette and shield are composed of 6 inches of nickel steel. There are in all four motors, two being employed, either together or singly, for training the gun, another for actuating the shell carrier, and another for hoisting the ammunition. The shield, turntable, and gun weigh sixty-five tons, and the shell-carrier, loaded with fifty-five rounds, thirteen tons. The main advantages claimed for the new process are speed and simplicity, seeing that it takes only ten seconds to bring the ammunition up from a depth of 60 feet, and thirty seconds for opening the breech and loading; whereas it takes two men, by manual labour, thirty-two seconds to smartly hoist up the ammunition. It was intended to subject both guns to a severe trial in order to ascertain the effect of concussion on the ship, provision having been made for firing at extreme elevation, extreme depression, and at various bearings; but only one round could be discharged from the foremost gun, as a snowstorm came on and shut out the horizon.

The preliminary firing trials of the new designs of mountings for the 12-inch breech-loading wire guns to be fitted on board the battle-ships "Cæsar" and "Illustrious" have also been carried out at Portsmouth on board the gun-boat "Excellent." The trials consisted of two rounds with three-quarter charges and five rounds with full charges, in addition to which two rounds with full charges were fired with the run-out cylinder empty, so as to see the effect on the mounting in case any of the supply pipes should be injured during action. The trials proved in every way satisfactory. The special features of these gun mountings are the ease and rapidity with which they can be operated by hydraulic, electric, or hand power; and the tests demonstrated that they had practically become rapid-firing

mechanisms and mountings. The breech mechanism, which is of the Woolwich design, and of the usual interrupted screw type, is operated quickly and easily in all positions by hydraulic apparatus which forms part of the gun mounting and has been specially designed by the contractors, Sir Joseph Whitworth and Co. (Limited), to meet the increasing rapidity of action demanded by the Admiralty, and is so arranged that it can be opened either when the gun is running out after recoil or after the gun has actually run out. This mechanism is so applied that in case the main hydraulic service is not available it can be operated with equal ease by an electric motor, which is also part of the system. With the object of saving time the hydraulic rammer has been specially arranged to dispense with all separate loading trays, and the ramming is done when the gun is run out in the firing position, when it is accomplished in two operations instead of three as hitherto. As the whole of the operations can be done either by hydraulic, electric, or hand power, thus giving two alternatives besides the hand power, the risk of disablement is reduced to a minimum. The trials showed that the time taken for the various operations with these mountings is so little that there seems no practical possibility of any further reduction of time without injury to the gun; while the fact that all the main, or principal, parts are made of Whitworth's fluid pressed forged steel virtually removes all doubt as to their withstanding the strains that may come upon them during firing. The confirmation of this opinion at the trials must be a source of satisfaction to the Admiralty, as the same contractors have received an order for similar mountings for three ships of the "Canopus" class.

For some time past Messrs. Yarrow and Co., of Poplar, have been making practical trials to ascertain the effect of feeding the Yarrow boiler with salt water. As is well known, this boiler is of the express or small-tube type, having tubes about $1\frac{1}{2}$ inches in diameter, as compared to the $4\frac{1}{2}$ -inch or 5-inch tubes of the type of water-tube boilers now being introduced in the Royal Navy for battle-ships and large cruisers. The express boiler is very much lighter than the larger tube variety, and its adoption would mean a great gain in speed of vessels, besides giving other advantages. It has always been considered, however, that the smaller tubes of the express boiler would be quickly stopped up in case salt water should gain access to them, through a leaky condenser or other contingencies which must be provided against. Messrs. Yarrow's experiments tend to disprove this theory, as they have been running one of their boilers for some time, using only sea water, with a greater density—*i.e.*, a larger proportion of salt and other mineral constituents—than would have been considered suitable even with the old ordinary shell boilers. The trials have been made with a torpedo-boat fitted with a Yarrow boiler having tubes 1 inch in diameter. The vessel was steamed off the mouth of the Thames for five consecutive days for eight to ten hours a day. Sea water only was used for feeding the boiler. The boiler was continuously blown off, the adjustment being such as to maintain the water in the boiler at a density of 3-32nds—that is to say, three times the density of sea water. The difficulty anticipated in using salt water was not only from incrustation of tubes, but from priming. It was found, however, that the vessel could be run at three-quarter speed without any difficulty from this cause. The boiler has been opened up after each trial, and has been found to be in excellent condition. Recently the final trial of the series was made, and was in some respects the most severe of the series. It is not, of course, anticipated that these boilers, any more than other modern marine boilers, should be used with salt water, but the experiments are put forward to show that in case of emergency the straight tube express boiler may be run for considerable periods of time successfully.

Two successful trials of Harveyized and nickel steel plates have lately been made at Portsmouth. A 6-inch nickel Harveyized plate, measuring 8 feet by 6 feet,

and made by Vickers, Son, and Co. (Limited), Sheffield, was fired at by a 6-inch B.L. gun with the full charge of 48 lbs. of powder giving a striking velocity of 1,960 feet-seconds, the distance of gun from plate being 30 feet. After the five rounds required to fulfil the conditions no cracks were found, all the projectiles were broken to small pieces, and only two fine surface hair cracks developed. The actual penetration measured by the points of two projectiles being jarred out was only $1\frac{1}{2}$ inches. Holtzer service projectiles of 100 lbs. weight were used. As the result of this trial the plate was accepted. The makers asked for a sixth shot to be fired and the request was accorded. The result was practically the same as before. Slight surface cracks showed round the point of impact, but otherwise the plate was undamaged. In the second trial a Harveyized steel plate manufactured by John Brown and Co. (Limited), measuring 8 feet by 6 feet, and 6 inches thick, was attacked by five Holtzer forged steel projectiles of 100 lbs. weight fired at ten yards range from a 6-inch B.L. gun, with the full service charge of 48 lbs. E.X.E. powder, giving a striking velocity of 1,950 feet per second. All the shot were completely broken into small fragments, and an examination of the back of the plate showed that no perforation whatever had taken place, and the backing was merely bruised behind each impact. Some cracks were formed, especially at the corners, but no piece was broken from the plate, and the general result was considered most satisfactory.

By direction of the Lords of the Admiralty, a list has just been compiled of the naval relics which are preserved at Her Majesty's Dockyard at Chatham. These include a cyprus wood chest, with figures and pattern burnt in, taken out of a Spanish galleon by Sir George Rooke in 1704; a flag of Oliver Cromwell's time, bearing the St. George's Cross and the Irish Harp; a large bronze gun taken at the storming of Nanking; and a metal gun captured in Upper Burmah. There are souvenirs of the Dutch attack on Chatham in 1667 in the shape of a pistol and two iron guns from the "St. Matthias," one of the vessels belonging to the enemy's fleet. The mementos of Lord Nelson include a block and dead-eyes taken from a Danish prize captured at the battle of Copenhagen in 1801; a 68-pounder shot taken out of the side of the "Victory," after the battle of Trafalgar, in 1805; and a bell that was in the "Dreadnought" at the same action; besides a portion of the painted canvas cover of the wheel of the "Victory." Among relics associated with other wars and battles are various Russian shells and shot from the Crimea, and a 6-inch round shot taken out of the "Castor" after the bombardment of St. Jean d'Acre. There is a very curious souvenir of the ill-fated "Royal George"—the purser's candle, obtained from the wreck in 1839, which remained under water since the ship sank, in 1782, till 1839. A portion of the keel of the ship is also preserved. The miscellaneous objects include turret plates taken from the "Glatton" after experimental firing, and plates from the "Apollo" and the "Howe," after they grounded on the Great Skellig, Ireland, and on the rocks in Ferrol Harbour, Spain, respectively. Some fifty figure-heads of various well-known old war-ships are preserved, including portions of carved work, among which are effigies of William III. and Mary and a scroll with the name of Nelson. Not the least interesting possessions of Chatham Dockyard are the original Admiralty orders extending back to the year 1686 and a copy of the official decree relating to the institution of "The Chest" at Chatham in 1617.—*The Times* and *Naval and Military Record*.

FRANCE.—The following are the principal promotions and appointments which have been made: Rear-Admiral—E. de Maigret to be Vice-Admiral. Capitaine de Vaisseau—E. F. Richard to be Rear-Admiral. Capitaine de Frégate—A. C. Fouet to Capitaine de Vaisseau. Vice-Admiral—E. de Maigret to Command of 1st Arrondissement Maritime (Cherbourg). Rear-Admiral—E. M. A. Escande to Command of Atlantic Naval Division. Capitaines de Vaisseau—F. T. Pissère, to "Carnot";

E. P. Fauque de Jonquières to "Caïman." Capitaine de Frégate—V. J. Lagrée to Command of Défense-Mobile at Lorient.—*Le Moniteur de la Flotte*.

The first-class battle-ship "Hôche," flag-ship of the Northern Squadron, is undergoing repairs at Cherbourg; she unfortunately touched on a rock when entering the arsenal, and the repairs to her hull and machinery will probably occupy a month. Vice-Admiral Parrayon has temporarily shifted his flag to the "Amiral Tréhouart." While on trial off Brest on 6th March, the new first-class battle-ship "Charles-Martel" had the misfortune to touch the Mingam rock, the accident, it is said, being due to a sudden failure of the servo-motor of the steering engine; fortunately the damage done was trifling, and the vessel was able to leave on the 8th for Toulon, where she has since arrived, and she will continue her trials at that port. The new second-class cruiser "D'Assas," from Saint-Nazaire, arrived at Brest on 22nd March for completion. The new armoured first-class cruiser "Pothuau" has completed her trials at Cherbourg and been placed in reserve, to be ready for sea at four days' notice; during her last twenty-four hours' run she maintained a mean speed of 17.8 knots. The new first-class battle-ship "Masséna," which is being built at Saint-Nazaire, is to leave this month for Brest for completion and trials. The trials of torpedo-boat "176," at Toulon, were brought to an abrupt conclusion on the 7th March, by a defect in the machinery; the boat was taken in tow by a passing steamer and brought into harbour. The torpedo-avisos "Dague," under orders for the Levant, has carried out successful trials at Toulon. On the other hand, the trials of the "Bombe," likewise being prepared for the same destination, have not been satisfactory. A pigeon-loft is to be erected on the fore-bridge of the battle-ship "Brennus," to accommodate 24 pigeons.

Vice-Admiral Besnard, the Minister of Marine, has issued a circular enjoining greater economy in the consumption of coal in the fleet, the amount expended in 1896 having greatly exceeded the quantity allowed for in the Budget.

Vice-Admiral Besnard has also laid on the table of the Chamber his Bill for the reconstruction of the French fleet. This Bill authorises the expenditure of 80,000,000 francs for new vessels with the view of placing French naval strength on an equality with that of other Powers. The Minister, in the preamble of the Bill, says that there is pressing need to begin the construction of one new ironclad of about 12,000 tons, two cruisers of 7,500 tons, two smaller cruisers of 2,500 tons, four torpedo-boat destroyers of 300 tons, and nine coast defence torpedo-boats of 85 tons. The cost of these vessels will be met by six instalments in the annual Budgets between now and 1902. "Besides this exceptional expense," says the Minister, "corresponding to the supplementary laying down of vessels asked for in the present Budget, there should be anticipated for the following years, in order to finish the programme within the time required owing to the rapid increase of the naval force of Europe, a certain number of new constructions so arranged as to utilise satisfactorily the capacity for production of our dockyards, without, however, imposing upon the country financial burdens exceeding the normal resources of the Budget. The final laying down, which would be for vessels of light tonnage only, would take place in 1903, and the whole programme would be realised in 1905." The Minister insists on the extreme urgency of the work in presence of the great activity in foreign dockyards.—*Le Temps* and *Le Yacht*.

In the *Revue des Deux Mondes*, of 1st March, appears an article entitled "La Constitution logique de la Force Navale Française," by an anonymous writer, which is interesting as showing the views held by one apparently well qualified to give an opinion regarding the weak points in the French Navy as at present constituted, and his opinion as to what reforms and additions are necessary to place the naval strength of France in a position to meet all eventualities. The following is a *précis* of the article in question.

The characteristics of a fleet depend, says the writer, on :—

1. The geographical position of the country and the hydrographical peculiarities of its coasts and neighbouring seas.
2. Its political situation.
3. Its financial position.
4. The special aptitudes and tendencies of the race which inhabit it.

Examining the geographical position of France, he states it is almost a commonplace to remark that few countries are more favourably situated for the development of maritime power. Better placed than England, France is established on the three principal seas of Europe, and on the Continent she occupies what in strategy is called the "central position"; but the full power of this position has not yet been developed for the want of a maritime canal that would permit a rapid concentration of naval force alternatively in the two seas separated by the isthmus of the Pyrenees; this matter has now become pressing, as at the present moment Great Britain is carrying out considerable works at Gibraltar.

Discussing the type of ship best suited for the different seas, the writer remarks that in former times it was the practice of our ancestors to have two navies distinct in character: the "*Marine du Ponant*," with high freeboard and heavy sail gear; and the "*Marine du Levant*," with lighter low-raking fine built galleys.

He thinks that with suitable modifications this principle should still be observed, and that for the one use there should be a class of ship with higher freeboard and raised bow; and for the other, since the Mediterranean Sea admits of it, vessels of a lower freeboard offering a reduced target to the Q.F. artillery of the day.

After discussing the political position of France, he says, that those who direct the French Navy must have taken into consideration the possibility of having to fight the Triple Alliance; but, nevertheless, since 1890 the three Powers which compose the latter have launched forty-seven ships, displacing 160,000 tons, whereas the French fleet has only been augmented by twenty-two vessels, displacing 144,000 tons.

As regards war with England, considering above all what has been done in the last ten years to arrest this great peril, he hardly dares to speak; for to engage such an adversary with any chance of success it is not a matter of constructing more ships than England, for she could build double the number in ever so much quicker time. But we should, he continues, strain our inventive faculties to the utmost, adopting new methods of warfare, and being, with our ships, always if possible a type in advance, as we used to be thirty or forty years ago. What, he asks, has become of our brilliant and inventive genius of former days? Has it been encouraged—who can truthfully say so?

But for the present let us say that our chief effort should be made to resist the Triple Alliance; we can afterwards consider how the forces necessary for that purpose can be modified to suit our requirements for a war with England.

With this in view, the writer first proceeds to give an account of the condition of the German Navy, and of the great interest shown in it by the present Emperor, whose love of the sea is well known, and who is reported to have said:—"My grandfather organised the glorious German Army, and it will be my care to organise the Imperial Fleet and make it a perfect fighting instrument."

What should we Frenchmen think of all this? asks the writer. Are we to suppose that a fine fleet of ten battle-ships, and as many large cruisers, and twenty or twenty-five sea-going torpedo-boats, all new ships, and capable of being mobilised in forty-eight hours, is only intended for a guard for the North Sea? No, assuredly not; and we have been warned that it is the Channel that the Germans propose to make the theatre of their operations; and how can we hope to bar their passage through the Straits of Calais with our inferior forces?

Before the Schleswig-Holstein Canal was constructed, half the number of ships

would have sufficed us ; but now to meet the Germans we shall require in the North at least fourteen battle-ships or armoured cruisers, ten cruisers for scouts, four torpedo squadrons of six or eight sea-going torpedo-boats each.

The battle-ships and armoured cruisers should be from 10,000 to 7,000 tons, and should have a speed of 20 knots and coal stowage of not less than 1,000 tons. Their main armament should consist of 24-centimetre (9·45-inch) guns, monster guns being now more ruinous, and they should carry an auxiliary armament of as many 16-centimetre (6·3-inch) to 14-centimetre (5·5-inch) Q.F. guns as possible, and be provided with seven torpedo-tubes. The protection given should consist of 10 (4-inch) to 20-centimetre (8-inch) hardened steel plates as a water-line belt and on the battery, and an armoured deck such as is usually fitted in the ships of England, Germany, and Italy. The draught of water should not exceed 8 metres for the 10,000, and 7 metres for the 7,000-ton ships.

The scouts should be vessels of about 3,000 tons with a speed of 22 knots, and the draught of water should not exceed 6 metres so as to admit of their passing through the Sound in any weather without danger.

The torpedo-boats should be 150 to 200-ton boats with 26 knots speed, with some larger vessels of 600 tons as divisional ships that should be superior to the similar craft which the Germans have of 400 tons.

Such appears to the writer to be the requirements for a French squadron intended to take the offensive in Northern European waters.

Turning next to the Mediterranean, he remarks it is probable in case of war that the Austrians after detaching a force for the defence of their coast-line would send a strong division to act with the Italians, and they could detail for this purpose a squadron consisting of three battle-ships (two new and one remodeled "Tegethof"), three protected cruisers, three fast smaller cruisers, with a dozen sea-going torpedo-boats ; and there can be no doubt whatever that the support of this well-equipped force maned by officers and men of well-known value would notably augment the strength of the fleet that would be opposed to us in the western basin of the Mediterranean ; this in itself affords an excellent reason for taking the offensive on our part, and our fleet should proceed with all possible despatch to the German Sea to prevent the junction of the Allies.

Examining the condition of the Italian fleet, the writer gives a high opinion of its value, and says it has all the faculties lacking in the French fleet if certain of the most recent French ships are eliminated ; its chief interest, however, he says, lies in the fact of its being a fleet meant to take the offensive, and that it has been made so of intent by those remarkable men, Brin, Saint Bon, and Morin, who have superintended its construction.

The active force detailed by the Italian Admiralty for operations on the high seas consists of 12 battle-ships and 3 armoured cruisers, 15 well-armed protected cruisers as scouts, 13 smaller cruisers, and at least 25 or 30 sea-going torpedo-boats of from 90 to 160 tons, besides 150 older and smaller boats.

Taken together, says the writer, these vessels possess a remarkable homogeneity. The speed in no vessel is less than 16 knots, while some can steam 18, 19, and 20 knots with ease, and the radius of action never falls below 4,000 miles at 10 knots speed, and in some of the ships this is doubled. For the fleet of a Power situated in the centre of the Mediterranean 4,000 miles represents an ample radius of action, as the distance from Port Said to Gibraltar is only 1,800 miles, thus one of the chief characteristics of this fleet is its mobility. "La guerre, c'est le mouvement," said Napoleon, and the Italians have not forgotten this point.

Another noticeable thing about the Italian fleet is that its defensive qualities are reduced to a minimum, while its offensive armament is raised to the highest degree of power. The only armour on two of the battle-ships is a protective deck of 76 millimetres, and eight others have only vertical armour of 10 centimetres, or a

short water-line belt of 15 to 25 centimetres ; five others are armoured amidships sufficiently only to protect the machinery and heaviest guns.

The Italians also have not forgotten the tremendous power of the ram when combined with sufficient speed to make ramming tactics practicable.

What forces, asks the writer, have we available to oppose this noble fleet, more especially when combined with and augmented by the Austrians ? In such a contingency for success it would be necessary that our fleet should have a minimum speed of 19 knots and a considerable radius of action. Our wants in this respect may, therefore, be summarised as follows :—

1. Coal endurance power to traverse the Mediterranean both ways at a speed of 12·5 knots, or to go from Toulon to Dunkerque at 14 knots, at an average expenditure, say, of 1,000 tons.
2. The maintenance of all the auxiliary machinery in motion for ten days at an expenditure of about 150 tons.
3. A reserve of at least 100 tons.

Total 1,250 tons of coal.

As regards the type of battle-ship we require, we have little to add to what has been already said when discussing our requirements in the North, observing that in the Mediterranean it is possible to effect a great reduction in the size of the target offered, and also to provide more efficient protection ; a suitable type of vessel for our purpose has already been realised in the " Monterey " and " Katahdin " of the new American Navy.

From this the writer proceeds to the consideration of the defence of the French littoral and that of Corsica, Algeria, and Tunis. For this duty he believes in the torpedo-boat of a rather large size, boats of 120 to 150 tons, capable if necessary of accompanying and acting with the fleet at sea. Smaller boats of 80 tons he thinks useful more for harbour defence. To arrive at the number required he supposes the case of a fleet returned to its base of operations for the purpose of refitting, coaling, and replenishing stores followed and kept under observation by the enemy, who, by way of annoyance, attempt a nightly bombardment of the port with a small division of three or four vessels retaining the remainder of his fleet under easy steam in the offing. In such a case it would be the duty of the mobile defence of the port to keep the enemy at a distance, and thus assure the carrying on of the refitting operation without interruption. For this duty, at least, twelve torpedo-boats will be required ; and, as the arduous nature of the service makes it advisable that the same boats should only go out on alternate nights, twenty-four boats may be fixed upon as the least number required for the defence of the naval base.

So let us say our requirements would be as follows :—Dunkerque, Cherbourg, and Brest, 30 boats each for the two former, 25 for the latter ; L'Orient and Rochefort, being not so liable to attack, might be allowed 10 boats each ; Toulon would require 30 boats ; Oran, Bizerta, Ajaccio, and Bastia, which strategically are very important positions, would require 15 to 20 boats each. Add to these, 90 boats, at least, for the defence of the commercial ports, and 50 or 60 for the six colonial bases of Dakar, Fort de France, Diego Saurez or Bourbon, Saigon, Noumea, and Tahiti, and we arrive at a grand total of about 360 torpedo-boats—probably 200 first-class and 160 second-class. To support these flotillas in action 30 fast avisos must be added, vessels of about 500 tons and 25 knots speed, with a sufficiently powerful armament.

There remains now only to be considered the protection of our own commercial fleet and the destruction of that of the enemy. Of these two tasks the first, unfortunately, will only be too easy of fulfilment ; the latter brings forward the question of a war with England, as that country possesses the greatest mercantile fleet of the world.

On the hypothesis of a conflict with Great Britain, our additional requirements would be as follows :—

1. Four divisions, composed of a cruiser of 4,000 tons of the "Descartes" type, and three cruisers of 2,000 tons of the "D'Estrées" type, to sweep the China Sea, Indian Ocean, Pacific Ocean, and West Indies; ruin the enemy's commerce, menace the naval stations, ransoming them if necessary, and at the same time covering our own. Necessarily inferior to the enemy in numbers, these divisions must have the advantage in speed and radius of action.

2. Eight large "croiseurs-corsaires" for the North Atlantic (of which in turn two could be away coaling and refitting) stationed on the mercantile routes converging on England; St. Lawrence—West Scotland, New York—Queenstown, Bahamas—English Channel, Bahia—Cape Verd, Finisterre—Ushant. These cruisers should be vessels of 10,000 to 12,000 tons, one-quarter of this displacement being devoted to coal stowage, and should have a speed of 23 to 24 knots.

3. Two other large cruisers for the North Sea, of 8,000 tons, with a speed of 23 knots, so as to admit of their escape from the new English cruisers "Powerful" and "Terrible."

Recapitulating the different elements of our fleet, we obtain as follows.

For two fleets acting on the offensive in the North and South:—

	Tons.
32 battle-ships or large cruisers	300,000
28 scouts	84,000
12 torpedo-avisos	18,000
56 sea-going torpedo boats	
26 cruisers of different types for commerce destruction, etc....	176,000
	578,000

It would be as well to add to this total 24,000 tons for four fleet transports similar to the "Foudre," making a grand total of about 602,000 tons.

As a set-off to this, what have we at the present time?

	Tons.
19 battle-ships	215,000
1 large armoured cruiser	
9 coast-defence battle-ships	60,000
27 scouts and cruisers	88,000
11 destroyers	17,000
40 sea-going torpedo-boats... ..	
8 torpedo-avisos	3,000
190 torpedo-boats	14,000
13 cruisers	78,000
1 fleet transport ("Foudre")	6,000

Giving the total tonnage of the French fleet in 1898 as 480,000 tons.

We have, therefore, 170,000 tons to build in the shortest time possible, or let us say 200,000 tons, bearing in mind the old vessels that will be struck off the list next four years.

And now as to the increased cost to the country; 200,000 tons, at a mean of 3,000 francs per ton for all classes of ships proposed, amounts to 600,000,000 francs, a large sum, no doubt; but it must be remembered that each year 80,000,000 francs are devoted to new constructions, which in four years make a sum of 320,000,000, and deducting this, we have a remainder of 280,000,000 to make good. This sum, however, might be still further reduced if some of the money annually voted for the repair of old vessels, which it would be better policy to leave as they are, were appropriated for the purpose, so that we may put the total to be raised by supplementary vote at 250,000,000.

The writer goes on to say that he does not consider himself competent to decide how this sum of money is to be obtained; but France, he feels sure, would not refuse the necessary amount for putting her Navy on an efficient footing, more especially now, when she is straining every nerve to reconstitute her Colonial

Empire, when the East is becoming more and more the axis of the political world, and when all nations are turning towards the sea in the search for riches, prosperity, and military power.

JAPAN.—The new first-class battle-ship "Fugi," built by the Thames Ironworks Company, Blackwall, and engined by Messrs. Humphrys, Tennant and Co., Deptford, last month successfully completed her official steam trials, the trial ground being the course in the vicinity of the Downs. After a very satisfactory preliminary run, to insure that all was in order with the propelling machinery, the "Fugi" left her anchorage in the early morning for a six hours' full-speed trial, with open stokeholds. During this trial four continuous runs were made over the course, the mean results attained being that steam at a pressure of 150 lbs. per square inch was maintained in the boilers (which are of the usual Admiralty cylindrical type), and a vacuum of 27.75 inches in port and 28.3 inches in starboard condensers; the port and starboard engines made a mean of 108 and 109.3 revolutions per minute respectively, and developed a total of 10,200-I.H.P., the resultant speed of the ship being 16.8 knots. On leaving her anchorage on the following morning the "Fugi" proceeded on a full-power forced-draught trial, during which six runs were made, the mean results attained being:—With a steam pressure of 152 lbs. per square inch in the boilers, and 1½-inch air pressure in the stokeholds, the engines made 120 and 120.3 revolutions in port and starboard respectively, the corresponding vacuum being 27.3 inches and 28 inches, and the total mean I.H.P. developed by the engines was 14,100, giving the ship a speed of 18.5 knots. On the completion of the forced-draught trial the vessel was put through some turning movements, which were highly successful, it having been shown that the helm could be put from hard over to hard over, when moving at a high speed, in 15 seconds, a result never before attained with any battle-ship.

A contract has lately been signed for another new battle-ship to be constructed by the Thames Ironworks and Shipbuilding Company, which will be, any way for the time being, the heaviest battle-ship built or building, as she will be 10 feet longer and have 6 inches more beam than the ships of the "Majestic" class; but the mean draught is to be 3 inches less, namely, 27 feet 3 inches. The total displacement at legend draught is to be 14,850 tons, whilst that of the "Majestic" class is 14,900; but the latter ships carry 900 tons of coal, while the Japanese ship will carry only 700 tons, so that the new ship will have 150 tons more displacement in sea-going trim than the "Majestic," supposing coal to be excluded. The dimensions of this vessel are as follows:—Length between perpendiculars, 400 feet; over all, 438 feet; breadth, 75 feet 6 inches; draught of water, 27 feet 3 inches; and displacement, with coal as above, 14,850 tons. The armour is to be made of Harveyized nickel steel and disposed as follows:—The hull to have a belt from stem to stern 9 inches thick all over engines, boiler, and magazine spaces, and 8 feet 2 inches deep; tapering at the ends beyond from 7 inches in thickness to 4 inches. Above this lower-belt an additional belt of 6-inch armour is worked to the height of the main deck and for a length of 250 feet, which length incloses the two barbettes, and at each end of this space a curved transverse bulkhead is worked 14 inches in thickness from above the armour deck to the height of main deck, thus forming a complete citadel 250 feet long. Above the main deck the barbettes, which are circular in form and protected by 14-inch armour, rise to a height of 4 feet above the upper deck. Between the main and upper decks screen bulkheads are also worked, extending from the barbettes to the ship's side. Within the armour belt, rising up from the lower part of it to a height of about 3 feet above the water-line, is a complete armour deck extending from stem to stern, 3 inches thick on the flat part, 5 inches thick on the slope, and tapering at ends. The vessel is to be constructed on the usual system of double bottom, connecting to water-tight flats at the ends of vessel, thus carrying the double bottom to the extreme ends.

The barbettes are circular in plan, as stated above, and armoured with 14-inch armour, having teak backing 4 inches thick. Each barbette carries two 12-inch breech-loading guns of 40 calibres, two guns being forward and two aft. The fourteen 6-inch Q.F. guns are also of 40 calibres, and are each placed in an armoured casemate of 6-inch Harveyized nickel steel. Eight casemates are placed on the main deck and six on the upper deck, and are to be fitted with the usual dismounting and sowing gear. The casemates are made water-tight both on the inner and outer sides, by which means the men at the guns will gain more protection from any explosive shells that might enter between decks, and this also prevents water entering between decks should the gun port get damaged. In addition to the above armament there are also twenty 12-pounder Q.F. guns placed on the upper deck, and eight 47-millimetre Q.F. guns on upper and main decks and in the military tops, also four 47-millimetre Q.F. guns on bridges and upper works. The torpedo armament consists of five 18-inch torpedo-tubes, one in the stem above the water-level and four submerged. The usual torpedo net defence will complete the defensive gear. The total complement of men and officers will be 741, including an admiral and thirty-eight officers.

The propelling machinery will be supplied by Messrs. Humphrys, Tennant and Co., of Deptford, and will be of 14,500-I.H.P.; the boilers will be of the Belleville type. The main engines are triple-expansion, driving twin screws, and have cylinders of the following dimensions:—High-pressure, 34 inches; intermediate, 53 inches; low pressure, 84 inches; stroke, 48 inches. The boilers will be twenty-five in number, with a total heating surface of nearly 40,000 square feet. The speed of the vessel is to be not less than 18 knots per hour. The electric light installation will consist of four sets of combined engines and dynamos, the latter the direct current type. Three sets will be of 400 amperes at 80 volts each, and one of 200 amperes at 80 volts. Six 24-inch search-lights of 20,000-candle-power each, with some 900 incandescent lamps for lighting cabins, saloons, magazines, store-rooms, engine and boiler rooms, coal bunkers, etc., will be provided, the incandescent lamps being of 16-candle-power.

The steam steering gear will be on Cameron's self-regulating principle, worked by steam steering engines in duplicate, in case of possible failure in one set, and the controlling gear is to be on Messrs. Brown's telemotor principle, controlling the helm from the pilot-house, the bridge forward, the after pilot-house, and the bridge and steering compartment, and from below the protective deck forward. The boats carried will be fourteen in number, including two 56-foot vedette boats, fitted with the Thames Ironworks water-tube boilers, one 42-foot launch, and one 30-foot steam pinnace. Each of these will carry Whitehead torpedoes, and be fitted for mining and counter-mining purposes. The vessel has been designed by Mr. Mackrow, in accordance with the views of the Japanese naval authorities, and a Naval Commission presided over by Captain Yendo, Japanese Naval Attaché in London, Captain Myabara, and Captain Tukayama, also of the Imperial Japanese Navy. The time for the completion of the vessel is twenty-three months.—*The Times and Engineering.*

RUSSIA.—The following are the principal appointments which have been made: Vice-Admirals—C. de Livron to Command of Port of St. Petersburg; Tyrtoff to Command of Baltic Manœuvre Squadron for the year. Rear-Admirals—Mazimoff to Second-in-Command of Baltic Manœuvre Squadron; Messer to Command of ships on trial; Biribeff to command of Gunnery School Division; Krieger to Command of the Cadet School Division.

The following are the principal details of the Naval Estimates for 1897, with the corresponding votes for 1896:—

	1897 £	1896 £
Central Administration	190,249	188,936
Rewards, Pensions, Education of Children	48,074	45,991
Naval Schools	73,184	67,324
Medical	92,073	90,600
Navy Pay	432,803	376,569
Provisions	91,839	87,048
Clothing	184,985	137,469
Navigation	1,235,811	949,021
Hydrographic Office	77,530	65,025
Guns, Torpedoes	844,938	677,058
Construction	1,574,595	1,906,300
Workshops and Offices	391,499	352,274
Hire, Maintenance, Construction, and Repair of Buildings	459,598	445,876
Religion	62,500	65,417
Exchange on Sveaborg Expenditure ...	6,391	8,643
Fittings of Port Alexander III., and Construction of Dock at Vladivostok	333,333	312,500
Conversion of Guns	—	75,937
Expenditure on Account of Estimates for 1898	19,061	18,144
Sundries	121,346	167,993
	<hr/> £6,239,800	<hr/> £6,038,125

The worst gun accident which has occurred on a ship-of-war since the bursting of one of the "Thunderer's" 38-ton guns in her foremast turret, when out for target practice off Besika Bay on the 2nd January, 1879, took place on board the new Russian battle-ship "Sissoi Velikie" on the evening of the 15th ult., when also out for target practice off Suda Bay. The "Sissoi Velikie" is quite a new ship, and has only been attached to the Mediterranean Squadron since the end of last year; she is a vessel of 8,880 tons, and has unarmoured ends, but is protected by 15·7-inch compound plating, 7 feet deep for a distance of 247 feet at the water-line, above which is an armoured casemate (5-inch) 195 feet long, closed at the ends by transverse bulkheads. Protection is thus given to the ammunition hoists of the turrets, which have 14-inch plating, and together mount four 12-inch Obuchoff guns. In the battery are six 6-inch Q.F. guns, and sixteen 3-pounder and 1-pounder Q.F. guns are on the deck and in the tops of the two fighting masts. The engines are of 8,500 H.P., and are calculated for a speed of 16 knots. No one knows exactly what caused the accident, but it is believed that a full charge of gunpowder, about 250 lbs. weight, exploded in one of the guns of the after turret before the breech was properly closed. There were two officers and eleven men inside the turret at the time. Of these, the two officers and four men were instantly killed, and the remaining seven seriously wounded. Five of them were not expected to live. It is a marvel that all, shut in as they were, were not killed on the spot. To make matters worse, the roof of the turret was split in two by the explosion; one piece fell overboard, and the other was hurled over the mast, smashing one of the yards on the way. This piece of the roof did the greatest damage. It fell amidships among a crowd of men killing fifteen and wounding many more. The ship has since left for Toulon, where the damage caused by the explosion is being repaired.

The Russian Squadron in the Mediterranean consists of the following vessels:—

Battle-ships	—"Imperator Alexander II." (flag-ship of Rear-Admiral Andreieff), "Navarin" "Sissoi Velikie," "Imperator Nicolas I."
Coast-defence ship	—"Admiral Senjavin."
Torpedo-cruiser	—"Vostnik."

Armoured gun-boat	— "Grozashtchi."
First-class gun-boat	— "Zaporozjets."
Sea-going torpedo-boats	— "Pakerort," "Polanghen."

The squadron in Eastern waters (China and the Pacific) consists of:—

First-class armoured cruisers	— "Rurik" (flag-ship), "Admiral Nakhimoff," "Dimitri-Donskoi," "Pamjat Azova,"
First-class cruiser	— "Admiral Korniloff."
Second-class cruiser	— "Rynda."
Clippers	— "Kreiser," "Zabiyaka."
Torpedo-cruisers	— "Gaidamak," "Vsadnik."
Armoured gun-boats	— "Gremiashtchi," "Otvajny."
Gun-boats	— "Bobr," "Mandjur," "Koréyets."

Great activity continues to reign in all the Russian dockyards. At Nicolaieff, a second-class battle-ship, a sister-ship to the "Rotislav" and "Sissoi Velikie," of 8,800 tons displacement, has been laid down. In addition, two first-class battle-ships of 12,480 tons are to be commenced, of which one is to be ready for launching next year, and the second in 1900. In the Baltic yards the first-class battle-ships "Poltava," "Sevastopol," and "Petropawlowsk," and the coast-defence ship "General-Admiral Apraxin" are being completed for their trials; while the first-class battle-ships "Peresviet" and "Osliaba," and a new first-class cruiser of the "Rossia" type are nearly ready for launching; and it is proposed to lay down three other first-class cruisers and two torpedo-boat destroyers. The new torpedo-boat destroyer "Abrek," building at the Creighton Works at Abo, is nearly completed. A new electric signalling system, invented by Captain Niedermuller and Lieutenant Remmert, is to be fitted in certain ships for trial. The new first-class armoured cruiser "Rossia," which grounded on a sand-bank while proceeding to Cronstadt from the new Admiralty Yard at St. Petersburg on the 7th November last was floated again on the 26th December last, after having been ashore for fifty-one days. The ship apparently sustained no damage. The old armoured battery "Netronj-Menja" is to receive new boilers and be fitted for petroleum fuel. Two new sea-going torpedo-boats, Nos. "133" and "134," have completed their trials off Cronstadt; they averaged a speed of 24.5 knots, and are fitted with Du Temple water-tube boilers. These boats are two out of ten being constructed by the Moscow Company on the Neva; two other larger boats 180 feet long have been ordered at the Creighton Works at Abo. Further experiments with the Masut (a petroleum mixture) fuel have been carried out in the first-class torpedo-boat "Viborg," and, as the result, all torpedo-boats fitted with locomotive boilers are to be fitted to consume this fuel. Torpedo-boats with water-tube boilers have not as yet been so fitted, but in all the new boats the necessary arrangements are to be made.

A new harbour called Ekaterinograd is to be constructed on the Murman coast of Lapland between the White Sea and the Norwegian frontier, and at a point which, thanks to the Gulf Stream, is free from ice all the winter through. A line to connect the new port with St. Petersburg has already been commenced.

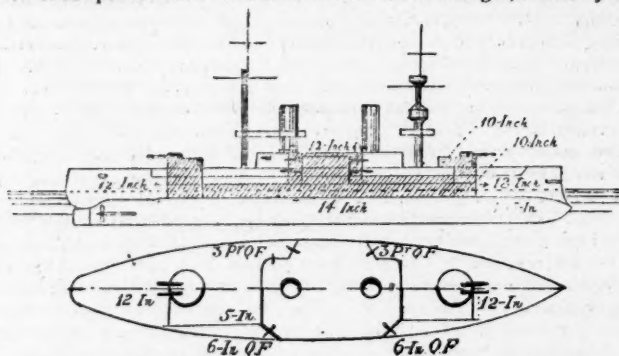
It is further stated that the Government are about to undertake the gigantic work of joining the Black Sea and the Baltic by a canal. In 1891, the late Tsar Alexander III. directed that surveys should be made for the construction of a canal which should be navigable by the largest ships of the Navy and mercantile marine. The most practicable project was reported to be one by which the Dwina and Beresina should be connected with the Dnieper, which falls into the Black Sea, by a canal having a uniform depth of 28 feet from the mouth of the Dwina in the Gulf of Riga to the Black Sea, a distance of 800 miles. It is estimated that the work can be executed in five years. The new canal if completed will undoubtedly be of enormous strategic importance to Russia.

The active *personnel* of the fleet numbers at the present time 32,477 officers

and men. There are 14 vice and rear-admirals, 265 captains and commanders, 748 lieutenants, 98 sub-lieutenants, 104 gunnery and 241 lieutenants for navigating duties, 336 engineers, 135 doctors, 168 paymasters, 37 chaplains, 476 cadets and midshipmen, and 29,850 men.

The new first-class battle-ship "Tri Sviatitelia" has undergone her twelve hours' full-speed trial, which was completely successful. The engines worked smoothly throughout, developing considerably more than the contract H.P., and gave the ship a speed of 18 knots instead of 16 for which the vessel was designed. The engines were built by Messrs. Humphrys, Tennant and Co., of Deptford, who have built the engines for so many of the Russian ships.

The first-class battle-ship "Dvienadsat Apostolof" (Twelve Apostles), a photograph of which forms the frontispiece, was built at Nicolaieff and launched in 1891. Her dimensions are as follows:—Length 330 feet, beam 60 feet, and with a displacement of 8,500 tons she has a mean draught of 25 feet. Her engines develop 11,500 I.H.P., giving her a speed of 16·5 knots. She has a 14-inch water-line belt of compound armour for about two-thirds of her length, closed by 12-inch



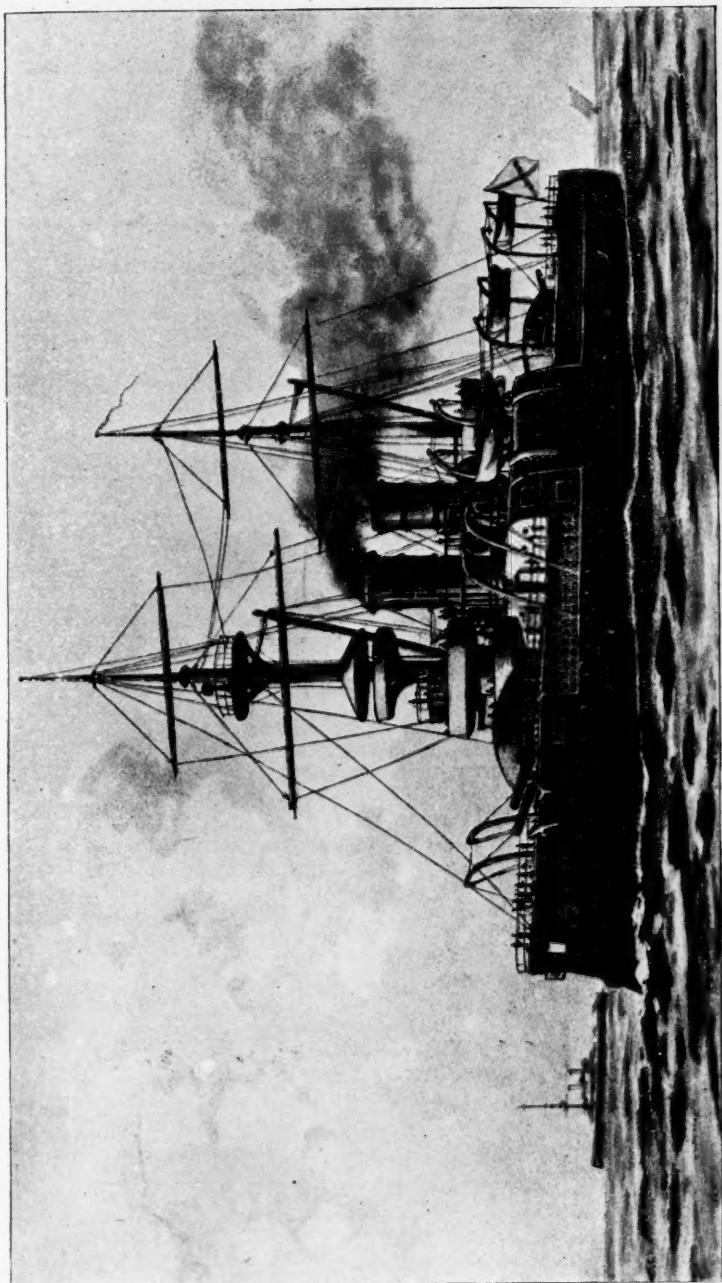
Profile and Deck-plans of the Russian first-class battle-ship
"Dvienadsat Apostolof."

athwart-ship bulkheads. At each end of the belt rises a barbette protected by 12-inch armour, and amidships is a central redoubt of two tiers also protected by 12-inch armour, with 5-inch transverse bulkheads, and there is an armoured deck 2·5 inches thick. The armament consists of four 12-inch guns, two in each barbette, four 6-inch guns in the lower central battery, and ten 3-pounder Q.F. guns, six of which are in the upper battery, and there are five torpedo-tubes, one in the stern and the others on the broadside all above water.—*Kronstadt'ski Vjästnik and Mittheilungen aus dem Gebiete des Seewesens.*

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS DURING MARCH, 1897.

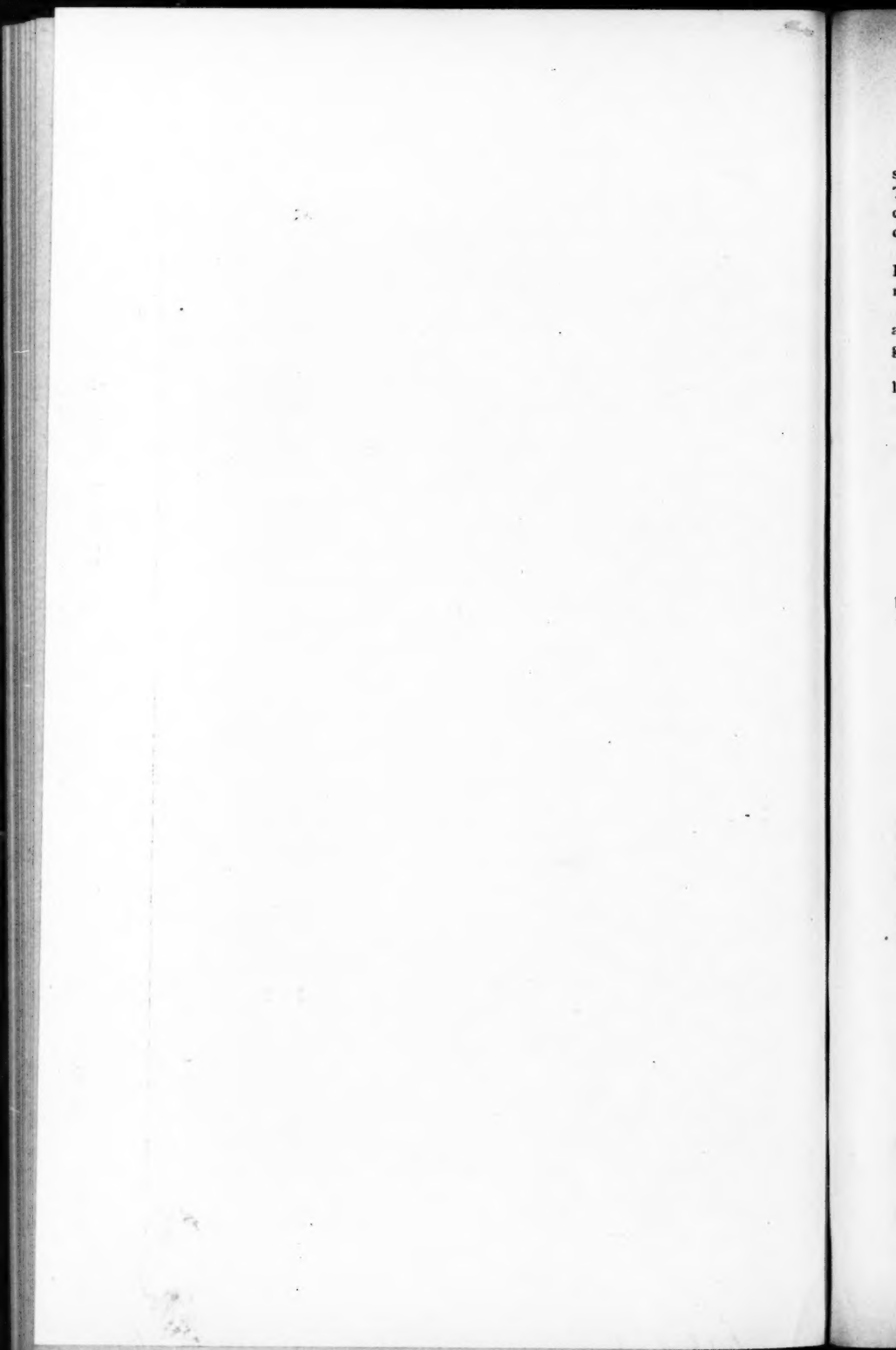
Lieut.-General and Hon. General J. W. S. Smith, C.B., from the Gloucestershire Regiment, to be Colonel of the South Staffordshire Regiment; Major-General and Hon. Lieut.-General J. P. Redmond, C.B., to be Colonel of the Gloucestershire Regiment; General W. W. Goodfellow, C.B., to be Colonel Commandant, Royal Engineers. Colonel (temporary Major-General) T. Kelly-Kenny, C.B., commanding 3rd Infantry Brigade, Aldershot, to be Major-General. Brigadier-General T. B. Tyler, R.A., to be Inspector-General of Artillery in India.



J. J. K. & Co. London.

[See Naval Notes, p. 526]

First-class Russian Battle-Ship "DVENADSAT APOSTOLOF" (TWELVE APOSTLES),
8,500 Tons, 11,500 I.H.P.



HOME.—Army Order 41, of April, 1897, gives the instructions for the re-organisation of the cavalry of the line, which takes effect from the 31st March, 1897. The establishments and organisation are circulated for information, but they cannot take full effect until after the embarkation of the cavalry drafts for India during the trooping season of 1897-98.

The establishments and organisation of regiments serving in the United Kingdom, those of a regiment serving in the Colonies and Egypt, and those of a regiment serving in India, are shown in the Appendices to the Order.

In each regiment the reserve squadron will be formed of the band-sergeant and corporals, the bandsmen, the corporal rough-rider, the clerks, waiters, Maxim-gun detachment, and the most backward recruits.

Eight regiments serving in the United Kingdom will be on the higher establishment. Twelve regiments at home will be in brigade as follows :—

1st Brigade	...	Head Quarters, Aldershot	...	3 regiments on higher establishment.
2nd "	...	Head Quarters, Canterbury	...	3 regiments on higher establishment.
3rd "	...	Head Quarters, Curragh	...	2 regiments on higher establishment and 1 on lower establishment.
4th "	...	Head Quarters, Colchester	...	3 regiments on lower establishment.

The staff of the 1st Brigade will remain as at present. That of the three other brigades will be as follows :—

	Colonel on the staff	Brigade Adjutant	Riding-master	Quarter-master	Quarter-master-sergt.	Orderly-room sergt.	Orderly-room clerks
2nd Brigade	...	1	1	1	1	1	3
3rd "	...	1	1	—	—	1	1
4th "	...	1	1	—	—	1	1

The riding establishment, consisting of a riding-master, and eight selected non-commissioned officers as assistants ; two non-commissioned officers or privates from each regiment of cavalry serving at home, for training as rough riders ; and the dépôts of regiments serving in the Colonies and Egypt, will be attached to the 2nd Brigade.

Regiments serving in India will cease to have dépôts after the trooping season of 1897-98. They will be supplied with drafts from home by the regiments of the same corps (dragoons, hussars, or lancers) on the lower establishment.

The horses of the three service squadrons of the regiments in the 1st and 2nd Brigades will be composed entirely of animals fit for active service. These regiments will not usually receive more than twelve remounts per annum, which will be posted in the autumn, and will be rising five years old or over. The other horses required to maintain efficiency will be supplied annually from the regiment proceeding to India, supplemented, if necessary, from regiments on the lower establishment.

No remounts will be placed in the ranks until the spring of the year in which they become 5-year olds, and then only if well developed and thoroughly trained. They will not be ridden at any manœuvres of all arms until they are six years old, but, when specially ordered, may accompany their squadrons to cavalry concentrations, where they will only be subjected to light work.

All cavalry regiments at home will retain their existing full dress and appointments, but in each of the three corps of cavalry of the line, the undress and field dress of all the regiments will be the same.

Cavalry reservists will mobilise at Canterbury, and the reservists and pensioners of the cavalry will be paid from there as at present.

The same Army Order announces the conversion of the 21st Hussars into a regiment of lancers, and the order for its clothing, arming, and equipment as such. This brings the number of lancer corps in the British Service up to six. Cavalry soldiers armed with the lance existed in the Armies of Austria, Germany, France, Russia, and Poland, some time before their introduction into the British Service. In 1811, a proposition on the subject, by J. B. Drouville, captain-of-horse, was submitted to the Duke of York, and these suggestions, with coloured illustrations, were published in 1813; but nothing came of them. At the levée held at the Horse Guards on 23rd May, 1814, Lieut.-Colonel R. H. de Montmorency, 9th Light Dragoons, submitted to His Royal Highness a scheme¹ for the formation, exercise, and manœuvre of lancers in the British Service on the principle of the Polish lancers, which appears to have somewhat influenced the commander-in-chief. At all events, in 1816 His Royal Highness resolved on trying the experiment to the extent of attaching a troop of lancers to each cavalry regiment, in the same manner that companies of grenadiers and light infantry were attached to regiments of infantry. General the Earl of Rosslyn, Colonel of the 9th Light Dragoons, an officer whose opinions on cavalry questions were thought highly of, suggested his regiment for the experiment. Fifty picked men were trained under the superintendence of Captain J. G. Peters,² of that regiment, and an account was given of their inspection at the Queen's Riding House, in Piccadilly, on 20th April, 1816, in the presence of a few select spectators. The men were dressed in blue jackets faced with crimson, grey overalls, and blue cloth caps. Each carried a lance 16 feet long, with a pennon, in the corner of which was a small Union Jack. The ferrule of the lance was placed, as now, in a leather socket attached to the stirrup, and the lance was supported near the centre by a sling round the arm. de Montmorency says, in his work, that the men were drilled at Hampton Court, under his superintendence, by Sergeant-Major R. Cooke, of the 9th Light Dragoons, so that it is very probable that they were taught the lance exercise, etc., under de Montmorency, and the equitation portion of their training by Captain Peters. However, it was soon decided not to persevere with the idea of mere lancer troops, but to form entire regiments. The following corps were, in the autumn of 1816, converted into lancers:—9th, 12th, 16th, and 23rd Light Dragoons.³ In the following year, the 19th Light Dragoons⁴ were also converted; the 17th were formed into lancers in 1823, and the 5th were revived as lancers in 1858.

In "Conversations on Cavalry," alluded to at some length on page 506, is one chapter in which all cavalry officers will be interested. The Seventh Conversation is on "Sport and Professional Equestrianism," in which great stress is laid on hunting and campaign riding, and riding in flat races and steeplechases. Lieut.-General von Rosenberg, who is now one of the Inspectors-General of Cavalry, was in his youth the most brilliant steeplechase rider in Germany. In his own work, published in 1883, he mentions that he came in first in 178 steeplechases, second in 106, and on service he charged the enemy six times.

¹ Published as a treatise in 1820.

² Captain J. G. Peters, 9th Light Dragoons, was a great authority on military equitation, in which he was early in life instructed in the *mandé* at Hanover. He then entered the cavalry, and was in the King's German Legion until in 1805 he was appointed lieutenant and riding-master of the Scots Greys, from which he purchased a troop in the 9th Light Dragoons. In 1816, the Duke of York appointed him superintendent of the Cavalry Riding Establishment, which he held until 1826, when, as a lieut.-colonel, he appears on the half-pay list.

³ Raised 1794, disbanded 1817.

⁴ Raised 1781, disbanded 1821.

He also quotes the words of General von Witzendorf:—"It is always difficult to find a cavalry commander, but, if you wish to find one, you must seek among those who are passionately fond of sport—you will surely find them nowhere else." Another point on which much stress is laid is the individual riding and rallying, in which all riders are to be trained, and afterwards undergo inspection. This individual riding consists in each man, after being properly instructed in equitation, being practised and encouraged to ride by himself, so as to get confidence in his horse and himself. Without a doubt this has often been done in the British Service; it was carried out as far back as 1852 in the 16th Lancers, and the captain of the troop was congratulated on the good riding of the men by Lord De Ros, the Brigade-Major to the Inspector-General of Cavalry. But the subject has not as yet been introduced into our cavalry drill books.

With a view to providing the requisite machinery for giving effect to the provisions of the National Defence Act of 1888, and by the Regulations of the Forces Act of 1871, the Secretary of State for War has approved of the formation of a permanent Railway Council to advise as to the working of railways in the United Kingdom on mobilisation and in times of national emergency, also on questions relating to the transport by rail of troops, stores, etc.

The Council will meet at the War Office when required to do so by the Secretary of State, and during mobilisation it will sit continuously. Its duties will be generally to advise the Secretary of State on railway matters, and also to draw up a detailed scheme for the movement of troops on mobilisation, etc., and during mobilisation. In addition to acting as an advisory body, it will be a medium of communication between the War Office and the railway companies.

The majority of the members belong to the Engineer and Railway Volunteer Staff Corps, a valuable organisation, which has existed since 1860, and which numbers in its ranks the general managers of many of the large railway systems in the United Kingdom, and several well-known and distinguished civil engineers. It has an establishment of 110 officers; 30 lieutenant-colonels, 20 majors, 20 captains, 40 subalterns, but there have been no appointments as yet to the latter two ranks. There is no establishment of either non-commissioned officers or men. The Council also includes all the military inspectors of railways under the Board of Trade.

The following officers have been appointed to the Council:—

President.

Colonel D. A. Scott, D.S.O., Assistant Adjutant-General, Royal Engineers.

Members.

Inspectors of Railways, Board of Trade.—Colonel F. A. Mandarin, C.M.G., Engineer and Railway Volunteer Staff Corps; Lieut.-Colonel Yorke, R.E.; Lieut.-Colonel G. Addison, R.E.

Engineer and Railway Volunteer Staff Corps.—Colonel Sir Henry Oakley, General Manager, Great Northern Railway; Lieut.-Colonel J. C. Hawkshaw; Lieut.-Colonel Sir Charles Scotter, General Manager, London and South-Western Railway; Lieut.-Colonel J. W. Barry, C.B.; Lieut.-Colonel G. H. Turner, General Manager, Midland Railway; Lieut.-Colonel F. Harrison, General Manager, London and North-Western Railway.

Major H. M. Lawson, R.E., D.A.Q.M.G., Head Quarters.

Captain J. E. Clauson, R.E., who will act as Secretary.

The employment of railways for military purposes is a highly technical subject, and a distinctive feature of modern warfare. While the territorialism of the troops and the decentralisation of clothing, equipment, and stores, permit of Armies being raised in the present day from a peace to a war footing within the space of a few days, the development of railway communication in all civilised countries enables the mobilised forces to be concentrated in or on the borders of the theatre of war with a rapidity which, prior to the introduction of steam, was not thought of. They

have of late years increased to such an extent as to be of considerably higher importance than roads, in a military point of view, for certain periods in a campaign and in certain directions. Roads are still of greater importance in all operations carried out *near* the enemy; but for the concentration of Armies, for the rapid movement of troops from one theatre of operations to another, for all movements from the rear to the front in rear of an Army in the broadest acceptance of the term, for the transport of every kind of *matériel* and supply, railways rank higher than roads in importance.

If a line of railway be constructed either entirely or partially to meet, not so much chances of profit as other important interests, such as the defence of the country, or be thereby caused to be constructed more expensively than it otherwise would be, the promoters have to be assisted by the State. The latter would either construct the line and undertake the management itself, or guarantee the promoters a certain interest on their money, and obtain in return a preponderating influence in the question of construction and management. It is evident that when the State takes an immediate share in the construction of a railway, ample provision can be made to meet military considerations.

In Great Britain, however, railways are constructed to meet the requirements of peace, and not of war; and the direction, construction, and provision both of the *personnel* and *matériel* of a line of railway depend upon commercial considerations, especially those affecting the profit of the railway shareholders. But in the event of war or threatened invasion, the executive has ample powers to employ the vast network of railways spread over the British Isles. British railway traffic is, however, conducted on so vast a scale, and its management is a subject of such complexity, that it would obviously be undesirable to withdraw its control, in any circumstances, from the hands of the trained and experienced officials of the various companies. The terms of the legal enactments with reference to the power of the military authorities over railways in case of emergency are as follows:—"When Her Majesty by Order in Council declares that an emergency has arisen,"¹ the State has the right under the Regulation of the Forces Act, 1871, "to take possession in the name or on behalf of Her Majesty of any railroad in the United Kingdom, and of the plant belonging thereto, or of any part thereof, and may take possession of any plant without taking possession of the railroad itself, and to use the same for Her Majesty's service at such times and in such manner as the Secretary of State may direct." Also under the provisions of the National Defence Act, 1888:—"Whenever an order for the embodiment of the Militia is in force, it shall be lawful for Her Majesty the Queen, by order signified under the hand of a Secretary of State, to declare that it is expedient for the public service that traffic for naval and military purposes shall have on the railways in the United Kingdom, or such of them as is mentioned in the order, precedence over other traffic."

In the event of the above powers being put in force it would devolve on the military authorities to control the railways, the work being carried on by the ordinary staff of the companies. The War Office would, in a case of this kind, have the benefit of the great experience and assistance of the organisation already alluded to, the Engineer and Railway Volunteer Staff Corps, which is officered by civil engineers, many of whom are connected with the leading railway companies of the United Kingdom, and who, on the new Railway Council, advise and assist the military authorities in emergencies, in matters connected with railway management and engineering work generally. There is every reason to believe that, in case of the military forces in the United Kingdom being mobilised for the purposes of home defence, and being concentrated in any part or parts of the country for the purpose of guarding against or confronting an invasion, the railway arrangements would work satisfactorily. The success

¹ "Regulation of the Forces Act, 1871," Part IV., Sec. 16; and "Manual of Military Law," p. 818.

which has attended the concentration of large bodies of Volunteers, gathered from all quarters of the Kingdom for military functions and reviews on more than one occasion, has shown the extraordinary capabilities of the British railway system for military transport on a great scale.

Amongst recent military inventions is a patent Magazine Lee-Metford pouch, intended for use by cavalry, mounted infantry, and infantry. In shape it is circular; it holds 50 rounds; and weighs, when filled, about 4 lbs. It is $7\frac{1}{2}$ inches in diameter, and 2 inches in thickness. It has a disc on the outer top side, with numbers reversed and upside-down, which enables the soldier to tell how many rounds he has in his pouch. It is concave on the inside, and conveniently fits the shape of the body. It is carried on the back, with the aid of a belt, in the same way as the present pouch, and brought into use in a similar manner.

There is a slide which covers up the opening from which the ammunition is extracted, and also covers the disc, which prevents dust or rain from getting into the pouch when not in use. When used in wet or dirty weather the pouch can be turned upside-down, and the round of ammunition extracted when in that position, so that the other rounds are protected from grit or wet when in actual use. The action of extracting one round of ammunition brings the next round into position, it then being held firmly against the pouch by the action of the spring till required for use. In this manner it is always ready for use immediately a man gets into position for firing. After firing he can at once return to his horse, if necessary, and mount, without having any anxiety as to losing his ammunition on account of his pouch being unfastened. The pouch can be refilled quickly by reversing the action.

The Lee-Metford pouch for infantry is exactly the same as for cavalry, and is fitted on to the belt round the waist; and, on the same principle, it can be used for revolver, sporting rifle, and shot gun.

The cost of making is small.

The advantages claimed for the new magazine pouch over the present pouch are that:—(1) It holds more rounds of ammunition; (2) The ammunition cannot be lost, because, directly it comes into its place it is held in a grip by the action of the spring against the bar of the pouch, so that a man is not hampered by the shutting and opening of his pouch; (3) Greater facility in loading, and therefore less loss of time. The present pouch has to be unfastened, and after the first ten rounds are fired, the packets have to be undone to get at the rounds. In the new pouch the whole fifty rounds are always ready for use, and the man can load without even looking at his pouch; (4) The ammunition is better preserved from wet and grit, and is thereby less likely to injure the rifle; (5) And the soldier always knows how many rounds he has in his pouch; (6) It is superior to the bandolier for mounted infantry, in that it is easier to fill, not so clumsy on the body, gives free action, is easier to load from and get at, and preserves the ammunition better from rough usage and weather.

It is understood that three European Governments are in treaty for the pouch, and it is quite worth inspecting. Captain Sir Hawtrey Cox, late Inniskilling Dragoons, will be glad to show it and explain its mechanism to anyone at the Trafalgar Buildings, Northumberland Avenue, preparatory to one being exhibited in the R.U.S. Institution.

Army Order 43, of April, announces that the Queen has been graciously pleased to approve of the forces employed in 1896, in the military operations connected with the reconquest of the Province of Dongola, accepting and wearing the silver medal granted by His Highness the Khedive of Egypt. The medal will be granted to the troops serving at, and to the south of, Sarras between the 30th March and 23rd September, 1896, and to the troops under Brigadier-General C. C. Egerton, C.B., D.S.O., A.D.C., serving at Suakin between the same dates inclusive. A clasp inscribed "Ferket" will be granted to the troops

which took part in the operations south of Akasheh on 7th June, and a clasp inscribed "Hafr," to those which took part in the operations south of Fareig on 19th September.

The following is the new standard of height for British cavalry :—Household Cavalry, 5 feet 11 inches to 6 feet 1 inch, and 36 inches minimum chest measurement ; age, 18 to 25. Dragoon Guards, Dragoons, and Lancers—18 and under 20 years of age, 5 feet 6 inches to 5 feet 8 inches, with a minimum chest measurement of 34 inches ; 20 years and under 25, 5 feet 8 inches to 5 feet 9 inches, and 34 round the chest. Hussars—between 18 and 20, 5 feet 5 inches to 5 feet 7 inches, with a minimum chest measurement of 34 inches ; between 20 and 25, 5 feet 7 inches to 5 feet 8 inches, with the same chest measurement.

CANADA.—In view of the intention of the authorities to re-organise the Canadian cavalry, a writer in the *Canadian Military Gazette* strongly recommends the adoption of the rank-entire system as the most suitable for Militia cavalry. One regiment, the 8th Princess Louise Hussars, of New Brunswick, has adopted the two-rank system, but it has never been on active service, and has had no opportunity of practically testing the system. The advantages claimed for the one-rank system are, that all movements are made with greater precision and rapidity ; that it is easier and quicker to re-form after a charge ; and that the men have greater freedom. The Duke of Wellington certainly said that "the second rank of cavalry, at the usual distance of close order, does not increase the activity of the cavalry. The rear rank does not strengthen the front rank. The rear rank can augment the activity, or even the means of attack, of the front rank, only by a movement of disorder." Lord Vivian wrote that, in his opinion, "The second rank is of but little use but to fall over the first."

A new establishment was granted to the Canadian field batteries some time ago, but as yet none of them have been provided with the full complement of guns, harness, or equipment. The officers urge that pay should be granted for officers, non-commissioned officers, drivers, and horses for one day at least, at local headquarters, for fitting harness, trying horses, etc., or that one day should be taken off those allotted for camp, to enable the batteries to be paraded for that purpose at their local headquarters.—*Canadian Military Gazette*.

AUSTRIA-HUNGARY.—Orders have been issued for the drill of the Reserve and Ersatz-Reserve in 1897. All the reserve officers and cadets of the Infantry Regiments 23, 39, 53, 62, 70, and 86, of the 11th Chasseurs, of the 5th Fortress Artillery Regiment, and of the 2nd and 3rd Fortress Artillery Battalions, will attend at the nearest depôts of their respective corps ; also those who are to be trained with the infantry and the mountain batteries in Bosnia and Herzegovina. The War Minister will not excuse the attendance of any, except in cases of absolute necessity. Men of the Ersatz-Reserve are to be called out for twenty-eight days' drill, in order to give them a more thorough training than they have hitherto had, but those men who have to take part in the Grand Manœuvres will have a preparatory drill period of only twenty days.—*Militär-Zeitung*.

FRANCE.—The Canet Q. F. field gun-carriage is composed of two tubes made of forged steel, one of which penetrates the other, during recoil, like the cylinders of a telescope, whether a hydro-pneumatic or a friction brake be employed. The first tube, being fixed to the axletree, supports the bed of the carriage, while the other terminates in a spade which inclines downwards and enters the ground, thus affording the fixed point necessary for bringing back the gun into the firing position.

After experiments in 1893 the carriage was lightened and simplified. The

special construction of the carriage absorbs the recoil without increasing the weight. By this means it becomes possible to arrange the brake in such a way that its resistance to the recoil is never strong enough to raise the wheels off the ground. There are three types of Canet Q.F. field guns, the respective calibres of which are 65, 70, and 75 millimetres. The weight of the heavier variety of the last is 330 kilogrammes; of its carriage, 650 kilogrammes; carriage, gun, and limber, 1,555 kilogrammes; projectile, 5.2 kilogrammes; initial velocity, 600 metres; pressure per square centimetre, 2,200 kilogrammes; number of gunners, 4; rounds per minute, 10. The gun is closed by a cylindrical breech-screw, which is opened and closed by two successive movements of the lever, and the percussion arrangement cannot act until the last closing movement is completed. It is fitted with a tangent scale and sight which can be lighted at night by electricity. The other two guns are similar, although with minor differences. All three are provided with automatic extractors, are safe from premature explosion, and can be fired either by percussion or electricity. The special importance, however, of the Canet invention consists in the carriage already partly described.

The carriage, properly so called, is composed of two cheeks substantially joined underneath by two girders. The mechanism for laying includes, in addition to the toothed sector attached to the body of the carriage, an endless screw acting upon it horizontally and sustaining the training wheel which allows 4° of lateral range. For the purposes of elevation and depression there is a second wheel, a little in rear of the first, acting by means of a vertical screw. The preponderance of the breech keeps the gun in continual contact with the elevating machinery. The carriage is furnished with a sliding brake which does not, as a rule, require to be detached during practice. It is worked by a swinging bar and two cranks.

The axle is of forged iron, cradled in the centre to admit the cylindrical part of the carriage, and made with shoulders at the ends, to allow the use of higher wheels. The wheels are either wood and metal or entirely metal, according to the countries in which they are to be employed. All the wheels are fitted with a greasing arrangement of a special kind, which remains in order for several months without requiring attention.

The interior of the carriage forms a novel and simple hydro-pneumatic brake, insuring self-acting regularity. Its lasting qualities have been proved by prolonged trials, when it was driven at all paces over paved roads, and was found to resist alike the shocks of rough travelling and the action of the atmosphere. Its action is entirely automatic. After the first round the spade fixes itself in the ground. In proportion to the hardness of the soil there is a variable but insignificant recoil of not more than 3 centimetres at the first round, after which the trail and spade are firmly settled, and the telescopic action of the hydro-pneumatic brake brings the gun up to the firing position after absorbing the recoil. The smoothness and regularity with which the carriage works are remarkable. It is the same even when the axis of the piece forms an angle of 4° with that of the carriage. In the event of disablement to this particular machinery, the telescopic parts of the carriage can be keyed up, and the practice continued as with an ordinary gun. The only accessory carried with the gun is a rammer-sponge in two pieces. It can be used either for cleaning or oiling the gun. The cartridges and projectiles are carried separately, 90 per cent. of which are shrapnel, and intended to replace the various kinds of projectiles now used, each for its own particular purpose. The Canet shrapnel is composed of an outer covering of forged steel containing a number of cast-iron bodies in which hardened lead bullets are enclosed.

At the trials of these guns it was found that the smoke of the discharge was visible at a distance of 4,500 metres. The rounds fired at targets produced a large number of hits, with great penetration, and uniformly distributed. The Canet shrapnel of 75 millimetres, fired at ordinary masonry at a range of 2,000

metres, penetrated a distance of 80 centimetres without breaking up. The fuzes are of bronze or aluminum, the principal types being percussion and double-action. M. Canet has invented an ingenious *pince-débouchoir* for quick firing. His powders are smokeless, and are based either on nitro-glycerine or gun-cotton. — *Revue d'Artillerie*.

The War Ministry has taken steps to acquire two new exercise grounds for the Army. One is to be provided in the Orlogne for the 5th (Orleans) and 8th (Bourges) Army Corps; the other is intended for a cavalry camp of exercise, Châlons being so much required by the artillery. Negotiations are accordingly in progress with the landowners of Mailly, Trouan, Grandville, L'Huitre, and St. Ouen on the borders of the Aube and Marne. — *Le Progrès Militaire*.

The Telegraphic Manœuvres were commenced on the 1st April, mobilisation having taken place on that date. The officers and men were drawn from the classes composing the agents, messengers, and workmen of the civil telegraph service. In Paris there have been formed a Direction of Field Telegraphy, a First Line Section, a Supply Section, and a Park. The total comprises 1 director, 1 sub-director, 4 section chiefs, 3 section sub-chiefs, 3 postal chiefs, 41 telegraphists, and 60 foremen and workmen. The rolling-stock, furnished by the military train, was composed of 2 one-horse carriages, 7 two-horse, and 17 four-horse carriages, with 82 horses. The train supplied a detachment of 50 men for conducting purposes, in addition to 10 riding horses, 12 cyclists, and the necessary orderlies. This brings up the full strength to about 200 men, 100 horses, and 26 carriages.

Several of the elements mobilised had never before been brought together, and the utility of the trial was immediately proved by the inadequacy of the administrative arrangements. Hitherto there has been no complete organisation of military telegraphy, but this state of things should at once be remedied, as it is essential that the Military Telegraphic Service should be able to act promptly on a declaration of war.

The units formed on the 1st in Paris, marched out on the 2nd, and reached Meaux on the 3rd. They rested on the 4th (Sunday), and began active operations on the 5th, having been joined by a mobilised telegraphic section from Châlons. They manœuvred between Meaux, Pierrefonds, Coucy-le-Château, Laon, Saint Gobain, and La Fère, finishing at the last-named place on the 9th inst. The work performed was interesting, being accomplished simultaneously by the telegraphic sections, the cavalry telegraphists, the engineer telephonists, the trained pigeons, and the cyclists, in such a manner as to enable judgments to be formed on the rapidity and certainty of their respective messages. — *L'Avenir Militaire*.

GERMANY.—The German regulations for field service do not treat winter exercises with any minuteness. They merely point out that, in all seasons of the year, drills, musketry, field-days, and the fit condition of horses, are to be attended to. In marching on ice or snow the rate is slower, and all the energy of a commander is required to prevent the undue lengthening of columns. The mounted services gain experience of the best means of preventing horses' feet from slipping or becoming balled by snow. In winter manœuvres the ground looks different. What is passable in summer is not so then, and *vice versâ*. Many things impossible in the one season are possible in the other, and success is affected thereby.

In winter there is no injury to the crops, and movements are therefore more like those of war. Ice and deep snow favour the defence, rushes of skirmishers in great coats and through deep snow being impossible, and cover being difficult to find. The attack is thus a good target for the fire of the defence, but the defence cannot dig. Range-finding and reconnoitring are difficult, so are crossing country and transmission of orders.

The only value of a winter manœuvre is that the leaders gain experience, and

so care must be taken that it does not last too long, that the men do not suffer from it, and that the ordinary training be not interrupted. France and Russia carry out such exercises, more particularly Russia in the Warsaw district; and it is desirable that they should be recognised in the German Army also, in order that we may have some previous knowledge of what we may possibly have to encounter.—Abridged from *Militär-Wochenblatt*.

A Cabinet Order of 4th February contains the following instructions for the Grand Manœuvres of 1897. The 8th and 11th Army Corps, including the 25th (Hessian) Division, will manœuvre, in presence of the Emperor, against the 1st and 2nd Bavarian Corps. The 9th, 11th, and 17th Corps, in view of the special cavalry operations, will each form a cavalry division. The Emperor reserves to himself the appointment of the commanders of these divisions. The 8th and 11th Corps will have balloon detachments.

In the Guards, as also in the 1st, 2nd, 4th, 5th, 7th, 8th, 14th, and 17th Army Corps, there will be staff journeys. In the 11th Corps a fortress staff journey will be carried out. Under the direction of two inspectors of cavalry, there will be two grand journeys of cavalry instruction, in which generals and superior officers of cavalry will take part, as well as commanders of horse artillery groups.

There will be journeys of cavalry instruction in the 1st, 2nd, 3rd, 5th, 6th, 8th, 14th, and 16th Army Corps. Pioneer manœuvres will take place at Krossen (on the Oder), Coblenz (on the Rhine), and Ulm (on the Danube). Troops will return to their garrisons not later than 30th September.

The cavalry division formed in the 11th Corps will, after the special cavalry manœuvres, take part in the Imperial Manœuvres. The 11th Corps will receive, as divisional cavalry during the course of the operations, a cavalry regiment to be designated by the commander of the 8th Corps.

The following instructions complete the Cabinet Order:—The regiments of cavalry taking part in the special cavalry manœuvres must have 400 horses in the ranks. The special operations of the A and C Cavalry Divisions will take place on the exercise grounds of the 9th and 17th Army Corps; those of the B Division at Senne. Special instructions will be issued to the Cyclist Pioneers of this division.

The two grand cavalry journeys of instruction will last six days, exclusive of the march out and back.

The Prince Regent of Bavaria has issued the following orders with regard to the Grand Manœuvres:—The two Bavarian army corps will, as arranged with the Prussian Ministry, operate against the 8th and 11th Prussian Corps. The preceding brigade and divisional manœuvres will last three days, and those of the divisions will finish with a grand parade of the two army corps. With a view to the special cavalry operations the 2nd Corps will furnish a division which will be under the command of the Inspector-General of Cavalry, and made up of the 1st, 4th, and 5th Cavalry brigades, all the regiments having five squadrons. There will also be an artillery group from the 5th Regiment of Field Artillery and a detachment of the 2nd Battalion of Pioneers. This cavalry division will after the special cavalry operations take part in the Grand Manœuvres of the two army corps. The aerostatic section will be attached to the 1st Army Corps. The troops will return to their respective garrisons on the 30th September at latest.

GREECE.—The mobilisation of the Greek Army necessitates the bringing up of the "first line" to a strength of about three divisions. The Reserve raises the fighting strength to 61,130 rifles, 2,700 sabres, and 156 guns. The peace establishment provided for by the budget amounts to some 19,000, in which must be counted 2,000 officers, 4,000 under-officers, 2,000 ordnance corps and officers' servants, 4,000 gendarmes, and others, leaving but 5,000 effective rank and file.

Greece possesses a territorial army, on paper, which, after deducting 20 per cent., stands at the figure of 76,800 men; and a territorial reserve, which, after a deduction of 40 per cent., is 57,600 strong. It appears that during the last twelve years neither the territorial army nor its reserve has had much drill, and that the Regular Army has been deprived of its proper exercise, by police, frontier, and other duties. The lack of ready money has also prevented the carrying out of musketry instruction in the infantry, and the artillery practice has been limited to twelve rounds per battery. The present small-arms have been seventeen years in use, and are in a bad state of preservation. There are in store 120,000 Gras rifles, 50,000 Chassepots, and 6,000 of other patterns. For mobilisation there should be 102 field and 105 mountain guns, but there are only 86 of the former and 54 of the latter available.—*Militär-Zeitung*.

ITALY.—In the present year schools of gunnery will be held in the Italian artillery from May till the end of August. The only troops exempted from attendance are the mountain artillery and some fortress companies. The following projectiles will be served out:—To field batteries, 60 rounds of shell, 100 of shrapnel, 250 diaphragm shrapnel and 6 case; to horse batteries, 20 shell, 400 diaphragm shrapnel, and 6 case; to mountain batteries, 400 diaphragm shrapnel and 6 case. The fortress artillery will practice with all calibres, from 7 to 21 centimetres. A thousand rounds of ball cartridge for the two-barrel mitrailleuse will be issued to each company. About half the cartridges will be filled with filite and the remainder with black powder. A certain number of officers of the mobile and territorial Militia will attend. Some brigades of fortress artillery will carry out part of their practice at the schools of Cecina and San Maurizio in June and July, and the remainder subsequently in the Alpine zone.

The Italian Minister of War decided, at the end of February, that the "cantonment" ration is to be given to horses during manœuvres, as well as for ten days before and fifteen days after. In Italy the rations are classified as "summer" and "winter," the former being, for cavalry and artillery 4 kilogrammes oats with 5 kilogrammes hay in "station," and 5 kilogrammes oats with 5 kilogrammes hay in "cantonment." In winter these rations are, in both cases, 500 grammes less. Light cavalry horses have the same quantity of oats, but only 4 kilogrammes of hay.

Italian Grand Manœuvres will, after some years' abeyance, take place this year in the second half of September between Adige and Chieri. Four divisions of infantry, one of cavalry, and one of mobilised Militia will be present, and the infantry companies will be made up to 170 or 180 men. About 100,000 men will take part in the operations.—*Revue du Cercle Militaire*.

RUSSIA.—Of all Russian subjects liable to service, 279,000 are reported to have joined the Army and Navy in 1896, including those holding certificates of exemption from the Standing Army. This is about 5,000 more than in 1895, and 10,000 more than in 1894. In addition there are 3,400 Caucasians, about 2,000 Finlanders, Cossacks who serve under special conditions, and volunteers.

In the lists for 1896 there were 945,746 serving compulsorily, and in 1895 there were 1,060,000, of whom 21 per cent., or 203,645, were entitled to be exempt from service. The natives of the Caucasus were exempt in the proportion of 20 per cent. Family considerations of a pressing nature are always supposed to secure relief from service in the Regular Army. The distribution of men called out was very unequal, not being proportionate to the population of the respective provinces and districts. Thus Kieff furnished some 10,060; Podolia, 8,484; St. Petersburg, 2,561; Moscow, 4,051; Courland, 1,680; Archangel, 913; Olonetz, 889; Esthonia, 940; Jakutsk, 32; and Kutaïsk, 8.

The following figures, taken from the recruiting returns of 1895, are worthy of notice. Claims for exemption were put forward by 48 per cent. of the total

number ordered to assemble for duty. Of the 74.6 per cent. who came up for medical examination, 5 per cent. were totally unfit, 9.8 per cent. were capable of serving in the Landwehr, and 14.6 per cent. were put back owing to immaturity, illness, etc. The men who did not answer when called numbered 32,508, or 3.1 per cent.; of whom 7,798, or 14.6 per cent., were Jews. Those actually taken were 273,088 men, or 34.6 per cent. Of those who, although compelled to serve, were not drawn into the Regular Army, 227,000 were handed over to the Landwehr of the 1st class, and 271,000 to that of the 2nd class.—*Militär-Wochenblatt*.

A cavalry corps has been formed in Poland by the combination of the 13th and 14th Divisions, under the cavalry commander. The staff of the cavalry inspector has been transferred to this corps, and the 20th, 21st, and 23rd Horse Batteries, which formerly belonged to the above divisions, have been placed under the artillery commander.

Important manœuvres are to be held in the Warsaw district during the present year, when experiments will be made in engineering, sanitation, and supply.

Winter marches will be performed in the present year as in the past, especially in the Warsaw district. All troops, without exception, must take part in them, the infantry in full strength and the cavalry with all available horses. All officers must be present, and at least two marches every month must be made by all. The march must be governed by a tactical idea, and must finish either with an attack on a marked enemy, or with a manœuvre of two bodies, one against the other. The march should be at least 30 versts, should be performed in all weathers, and in heavy marching order. There will be no bivouacs when the temperature is under 10° Reaumur.—*Militär-Zeitung*.

A decree of January, 1897, prescribes important changes in the Russian artillery. There will be an addition of 70 batteries, distributed as follows:—Four brigades of 6 batteries; each will be created in the Governments of Wilna and Kieff, under the numbers 42, 45, 46, and 47. The sixteen active brigades at present in existence in Warsaw, Wilna, Kieff, and Odessa, will each have an addition of two batteries, a 7th and 8th. In 1895, the artillery in Warsaw was ordered to be raised to 8 batteries, and the present law is merely an extension of the system introduced there. Each artillery brigade will therefore consist of 8 batteries, forming 3 groups of 3, 3, and 2 batteries, respectively. The Guard Artillery will have 9 batteries in each brigade, and 3 groups of 3 batteries.

The number of guns in an army corps is from 96 to 112. A new brigade of artillery reserve will be created for service in the Caucasus; also a battalion of siege artillery. The garrison artillery at Kars will be reinforced. This reorganisation is to be completed on or before 1st January, 1898.

The Budget has risen to a sum of 384,379,994 roubles, accounted for as follows:—

Central Administration	2,404,710
Local Administration	8,488,414
Technical and Instructional Establishments	8,083,488
Military Hospitals	4,111,620
Clothing and Equipment	24,283,481
Subsistence	41,230,865
Forage	17,876,507
Pay	61,590,858
Military Establishments	16,105,977
Construction	22,946,952
Artillery and maintenance	11,070,545
Cost of Artillery Exercises	3,659,320
Cost of Transport, Despatches, etc.	8,566,701
Recruiting	2,652,282
Calling out Reservists	3,247,496

Pensions and Grants	...	...	...	...	3,135,975
Subsidies and Retiring Allowances	...	...	...	...	4,338,647
Administration of Turkestan and Transcaspia	...	...	...	...	1,047,649
Supplementary Credits	...	...	...	...	654,843
Transcaspian Railway	...	...	...	...	5,205,201
Under various heads	...	...	...	...	2,524,235
Re-armament of the Army	...	...	...	...	16,000,000
Etc., etc.					

The Budget of 1897 shows a diminution of 4,241,975 roubles, as compared with that of 1896, the whole Army having now been served out with the new pattern rifle.

Russian military writers have recently been much occupied with the Cossack and his hard lot. His period of service lasts for twenty years. When entering his nineteenth year he takes the oath of fidelity, and joins the "preparatory contingent," having at once to procure a horse, arms, and accoutrements. During the twentieth year of his age he is called out for drill in spring and autumn, and in his twenty-first year he has a month in camp. After that he is enrolled on the active list and serves for four years. He is then placed in the "second line" for five years, subsequently in the "third line" for three, and, finally, in the reserve for five years. The Cossack, during his twenty years of service, must maintain his uniform, arms, and equipment in good condition. He need not keep a troop-horse, except during his first twelve years of service. While in the second line he must annually attend a camp for twenty-one days. In the third line he has but one period of instruction, which comes in the third year. Besides he has, during his non-active service, to appear at three annual reviews and other inspections, which, in reality, oblige him to submit himself and his horse for inspection six or seven times a year. He must often travel great distances, and suffer much interruption of his employment, to meet these demands, and he is consequently ineligible for regular and well-paid work. But a more grievous burden is the maintenance of his troop-horse, for which he receives no consideration from the State, and which he is not at liberty to use in field-work. On the contrary, he himself must work hard to support his horse. He is, further, obliged to renew his uniform at his own expense if a new pattern be ordered.

Attention has recently been called to the importance of the work done by the "Okhotniki" or skirmishing groups organised in Transcaspia in 1891. These detachments, manœuvring in advance of columns, are of great use in gaining intelligence, guiding columns, and for other purposes of more or less irregular warfare; they are also employed in the difficult duties of finding forage and fuel in wild countries, for which they are specially trained as soldiers and sportsmen.

—*Revue du Cercle Militaire.*

The following modifications have been made in the organisation and distribution of fortress and field artillery:—

1. The No. 1 Dvinsk (Dünabourg) Battalion of Fortress Artillery becomes No. 2 Libava (Libau) Battalion.
2. The Bobruisk Company of Fortress Artillery is incorporated in the Dvinsk Battalion of Field Artillery, in which it will be the 3rd Company.
3. The Beuder Battalion of Fortress Artillery is moved to Odessa, and the name changed to that of the Odessa Battalion of Fortress Artillery.
4. The detachment of Odessa Fortress Artillery is made up to a company, and moved to Beuder, under the title of the Beuder Fortress Company.
5. A battalion of Caucasian Field Artillery is made up of four companies, two companies being borrowed from the Fortress Artillery of Alexandropol.

To sum up, the fortress artillery in Russia in Europe consists of 48 battalions and 3 independent companies. In the Caucasus, of 6 battalions and 1 independent company. In Asia (Turkestan, Transcaspian, and Amour), of 1 battalion, 6 independent companies, and 1 detachment. Total:—55 battalions, with some exceptions, of 4 companies each; 10 independent companies; 1 detachment. The field artillery, which is quite distinct from the fortress artillery, is at present composed of 1 battalion at Kieff, with 4 companies; 1 battalion at Dvinsk, with 3 companies; 1 battalion at Brest-Litovski, with 2 companies; and 1 battalion in the Caucasus, with 4 companies.—*Revue Militaire de l'Étranger*.

SPAIN.—The Spanish losses from the beginning of the insurrections till the end of February, 1897, out of a total of 216,599 officers and men sent out, were 1 general, 6 superior officers, 55 officers, and 1,130 soldiers, killed on the field of battle; 6 superior officers, 52 officers, and 577 soldiers, died of their wounds; 1 general, 30 superior officers, 287 officers, and 10,475 soldiers, died of yellow fever; 2 generals, 24 superior officers, 89 officers, and over 10,000 soldiers, died of ordinary diseases or accidents. The insurgents in their several fights with the Spaniards lost 20,457 men.—*Revue du Cercle Militaire*.

NAVAL AND MILITARY CALENDAR.

MARCH, 1897.

- 2nd (T). Cretan Gendarmerie mutinied at Canea and shot their colonel; they were disarmed by bluejackets from the European war-ships.
- 3rd (W). Severe defeat of Government troops by insurgents in Brazil.
- 4th (Th). Launch of third-class cruiser "Pegasus" from Palmer's Shipbuilding Yard, at Jarrow-on-Tyne.
- 5th (F). Cretan Gendarmerie disbanded.
- 8th (M). H.M.S. "Collingwood" paid off at Portsmouth, and H.M.S. "Dreadnought" at Chatham.
- 9th (T). H.M.S. "Royal Oak" commissioned at Portsmouth for Mediterranean, and H.M.S. "Collingwood" at same port for First Reserve ship at Bantry Bay.
- 11th (Th). 1st Bn. Royal Irish Rifles received orders for South Africa.
- 13th (Sat). Special Army Order commending the behaviour of troops on board on the occasion of the loss of the "Warren Hastings."
- 15th (M). Powder charge of 12-inch gun in the after-turret of Russian battle-ship "Sissoi Velikie" exploded, destroying roof of turret and killing 2 officers, 19 men, and badly wounding 15 others.
- 16th (T). Fire at Chelsea Barracks.
- 17th (W). Severe engagement between Government troops and insurgents at Paysandu, Uruguay.
- 18th (Th). 2nd Bn. Seaforth Highlanders arrived in England from India in the transport "Victoria," and proceeded to Dover.
- " " Launch of battle-ship "Tordenskjold" for Norwegian Navy, from Elswick ship-yard, at Walker-on-Tyne.
- 19th (F). Report of Departmental Committee on Health of British Soldier in India, issued.
- " " Rebels in Uruguay defeated with heavy loss by Government troops.
- 20th (Sat). Launch of first-class cruiser "Europa" from Messrs. Thomson's yard at Clydebank.
- 21st (S). Commencement of Blockade of Crete.
- 22nd (M). Military Works (Money) Bill passed through Committee in House of Commons.
- " " 1st Bn. Seaforth Highlanders left Malta for Crete in the s.s. "Clyde."
- 23rd (T). H.M.S. "Edgar" commissioned at Portsmouth to convey relief crew for "Undaunted" in China.
- " " H.M.S. "Eclipse" commissioned at Portsmouth as flag-ship in East Indies.
- " " H.M.S. "Melpomene" sailed for East Indies.
- 24th (W). 1st Bn. Seaforth Highlanders arrived at Canea and Candia, Crete.
- 29th (M). Launch at the Weser Yard, at Bremen, of second-class cruiser "Victoria Luise" for German Government.
- 30th (T). 2nd Bn. Royal Welch Fusiliers at Malta received orders for Crete.
- " " Military Lands Act (1892) Amendment Bill read a third time in House of Commons.
- " " H.M.S. "Pelvens" commissioned at Sheerness for service with Channel Squadron.
- 31st (W). Formation of Railway Council at the War Office, as a means of communication between War Office and Railway Companies.

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval*. Buenos Aires: February and March, 1897.—Have not yet been received.

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens*. Nos. 3 and 4. Pola and Vienna: March and April, 1897.—“The War between Austria and Italy in the Adriatic in the Year 1866: An Historical Study of Naval War,” by Ferdinand Ritter von Attlmayer (with four heliogravures and numerous plates, sketches, and diagrams).

FRANCE.—*Revue Maritime*. Paris: January, 1897.—“Geometry of Diagrams” (*continued*). “Medical Service on board-ship in Battle.” “Development and Progress of the German Navy.” “The English Navy in 1896.” “Note on the Employment of Torpedo-boats.” “The Maritime Fisheries.”

Le Yacht. Paris: 6th February, 1897.—“The Employment of Turbines as Motive Power.” “The new first-class battle-ship ‘Massena.’” “The United States Navy: the new first-class battle-ship ‘Iowa’” (*continued*). “Yachting Notes and News.” 13th March.—“The Greek and Turkish Fleets.” “Yachting Notes and News.” “The coast-defence battle-ship ‘Amiral Tréhouart.’” 20th March.—“The Naval Budget in the Senate.” “Yachting Notes and News” (with photographs). “The United States Navy: the battle-ships ‘Kearsage’ and ‘Kentucky’” (*continued*). 27th March.—“The English Naval Estimates.” “The Greek battle-ship ‘Psara’” (with photograph and plans). “The Naval Technical Association: The New Belleville Boilers.” “Yachting Notes and News.”

Le Moniteur de la Flotte. Paris: 6th March, 1897.—“The Crisis of the Mercantile Marine.” “The Situation in Crete.” “Colonial Notes.” 13th March.—“Naval Programmes.” “The Naval Budget in the Senate.” “The Situation in Crete.” “Fishery Schools.” “Colonial Notes.” “The *Maritime Inscription Law*.” 20th March.—“The Crisis of the Mercantile Marine” (*continued*). “The Credits for the German Navy.” “The State of New Constructions in England.” “New Regulations for Officer-Students.” “The Situation in Crete.” 27th March.—“German Affairs.” “The Situation in Crete.” “Colonial Notes.”

La Marine Française. Paris: March, 1897.—“Shells and Armour.” “The Personnel of the English Navy.” “The New Law regulating the Cadres of the Officers of the Navy.” “Transatlantic Mail-boats.” “Political and Diplomatic Review.” “The Parliamentary Enquiry into the Navy.”

GERMANY.—*Marine Rundschau*. Berlin: April, 1897.—“The Earlier History of the Fleet” (*continued*). “The Want of Cruisers and the Usefulness of Cruisers: two Historical Naval War Episodes in 1798.” “The Floating of the Russian Cruiser ‘Rossia.’” “Some Proposals for Rapidly and Completely Ventilating Bunkers.” “The Austrian torpedo-cruiser ‘Magnet.’” “The ‘Cheops,’ ‘Osaka,’ and ‘Yeddo.’”

ITALY.—*Rivista Marittima*. Rome: March, 1897.—“Armour for War-ships.” “Sebastian Veniero's Relation of the War Against the Turks, 1571-72.” “Note on a Formula for Calculating the Hull Resistance of Ships.” “On the Methods for Changing the Bearings between Ships in Simple Formation.” Letters to the Director:—“The Vassalo System of Sail.” “On the ‘Memoirs of Naval Lieutenant.’” “The Auxiliary Marine.” “On a Contribution to the Rational Solution of the Ballistic Problem.” “Referring to Prof. Lazzeri's Note II. on a Problem of Naval Strategy.” “Naval Notes.” “Mercantile Notes.”

L'Osservatore Navale. Palermo: Has not yet been received.

SPAIN.—*Revista General de Marina*. Madrid: March, 1897.—“The next Naval War.” “New Stand for the Barr and Stroud Telemeter.” “Intensity of the Force of Gravity at the Naval Observatory of San Fernando.” “The English Cruiser ‘Powerful.’” “The War Navies in 1896.” “The Operating Squadron in Cuba.” “Questions on Naval Strategy.”

SWEDEN.—*Tidskrift i Sjöväsendet*. No. 1: 1897.—“A Naval Academy in Sight.” “Annual Review of Mining Matters, Electric Engineering, and Explosives.” “The Navy during the Past Year.”

MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung*. Vienna: 7th March, 1897.—“Civilian Musicians and Military Chapels.” “The Mobilisation of the Greek Army.” 15th March.—“A Word of Warning.” “Winter Marches in Russia.” 23rd March.—“The Law of Blockade.” “The Strength of the British Army.” 31st March.—“Increase of Pay.” “The English Army.”

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: March, 1897.—“Practice with Coast and Ship's Guns.” “Russian Instructions for Battery-building.”

Organ der Militär-wissenschaftlichen Vereine. Vienna: March, 1897.—“The Employment of Telegraphs in War from the Earliest Times to the Present.” “The Decisive Defensive.”

FRANCE.—*Revue du Cercle Militaire*. Paris: 6th March, 1897.—“The Niger Hydrographic Mission.” “The New Discipline Regulations in the Portuguese Army.” “The History of the Madagascar Campaign.” 13th March.—“Probable Lines of Operation in case of War between the Franco-Russian Allies and the Triple Alliance.” “The New Discipline Regulations in the Portuguese Army” (*continued*). 20th March.—“The History of the Madagascar Campaign” (*continued*). “The New Discipline Regulations in the Portuguese Army” (*concluded*). 27th March.—“Preparatory Military Instruction.” “A Pocket Field-glass.” “The History of the Madagascar Campaign” (*concluded*).

Journal des Sciences Militaires. Paris: March, 1897.—“New Remarks on the Object and Elements of Strategy” (*concluded*). “Shooting in Battle.” “Report on the German Grand Manœuvres of 1879,” by General Skobelev. “Colonial Troops.” “The Instruction of Cadres.”

Revue d'Artillerie. Paris: March, 1897.—“A Study on Mountain Material for the Swiss Artillery.” “Field Material of the 75-millimetre Q.F. Schneider gun.” “The Hotchkiss Automatic Mitrailleuse.” “Note on the Instruction of Recruits in the German Field Artillery.”

Revue de Cavalerie. Paris: March, 1897.—“General de Jesse's Report on the General Cavalry Manœuvres in 1896.” “The Cavalry at the Battle of Austerlitz.” “Regulations for the Manœuvres of Russian Cavalry” (*continued*). “The Cavalry Officers' School in St. Petersburg.”

Le Spectateur Militaire. Paris: March, 1897.—"The German Manœuvres of 1896." "The Sanitary State of the Army." "The Military Forces of Greece." "Metz in 1792."

Revue Militaire de l'Étranger. Paris: March, 1897.—"The Present Tendencies of the German Cavalry." "The Marriage of Officers in Italy." "Moltke: Plans of Concentration and Operation."

Revue du Génie Militaire. Paris: March, 1897.—"Engineering Operations during the Madagascar Campaign" (*continued*).

GERMANY.—*Militär-Wochenblatt.* Berlin: 3rd March, 1897.—"Austrian War of Succession, 1740-48." 6th March.—"Remounts and Government Studs in France." 10th March.—"Patriotic War Memories." "The Russian Frontier Guard." 13th March.—"A Few Words on the Attack and Defence of Constantinople on the Land Side." "Despatch Riders at Great Manœuvres." 17th March.—"A Few Words on the Attack and Defence of Constantinople on the Land Side" (*continued*). 20th March.—"Two Letters of the Emperor William I." 24th March.—"The Empress Augusta Society for German Daughters." 27th March.—"A Few Words on the Attack and Defence of Constantinople on the Land Side" (*continued*). "Sedan." 31st March.—"Sedan" (*concluded*). "The Improvement in the Condition of the French Under-Officers."

Jahrbücher für die deutsche Armee und Marine. Berlin: March, 1897.—"In Memory of the Great Emperor, March 22nd, 1897." "Moltke's Pencil Notes in 1866." "On the Movement and Fire of Heavy Siege Artillery in the Attack of Fortresses" (*continued*). "From Gastein to Langensalza."

Internationale Revue über die gesammten Armeen und Flotten. Dresden: March, 1897.—"The Numerical Strength of the Army now and formerly." "The New Austrian Regulations for Field Service." "The British Army and Navy." "The Organisation and Interior Economy of the Military School of St. Cyr." "The Military Question in Belgium." "Asiatic Railways." "The Egyptian Soudan."

Deutsche Heeres-Zeitung. Berlin: 3rd March, 1897.—"Politics in the Army, or the Silent War School" (*concluded*). "Trafalgar and To-day." 6th March.—"Trafalgar and To-day" (*continued*). 10th March.—"A Contribution to the Improvement of the Turf." "Trafalgar and To-day" (*continued*). 13th March.—"Field Glasses for Officers." "Trafalgar and To-day" (*continued*). 17th March.—"The Fourth Battalions in France." "Trafalgar and To-day" (*continued*). 20th March.—"Bazaine's Responsibility." "Trafalgar and To-day" (*concluded*). 24th March.—"Italian Regulations for Active Service." 27th March.—"The Passage of the Danube in, the Russo-Turkish Wars." "Italian Regulations for Active Service" (*concluded*). 31st March.—"New Recruiting Laws in Italy."

Neue Militärische Blätter. Berlin: February, 1897.—"A Statement of the Events from the 2nd to the 4th August, 1870, on the French side." "Practical Remarks on the French Grand Manœuvres of 1896." "The Italian Army and the Proposed Reforms." March, 1897.—"The Real Signification of Independent Command in War." "The Estimation in which Uniform is held in England." "Kassala, England and the Dervishes."

ITALY.—*Rivista di Artiglieria e Genio.* Rome: February, 1897.—"Practical Considerations on Aiming from Coast Batteries." "On the Measurement of Road Gradients in Military Surveying." "The Defensive System of the Tyrol." "Artillery Scouts." Miscellaneous Notes:—"Maxim-Nordenfeldt Gun." "Improvements in the Soldier's Bed." "Automatic Elevation Sights." "Safety Gear for Canet Guns." "Heavy Campaigning Batteries." "Great Rivalry in Automobile Carriage Construction." "Guns on Motor Carriages." "Stenzel Flying

Machines." "Cement-Making Furnace." "Screw Piles or Pegs." "Beedham Air Extractor."

Rivista Militare Italiana. Rome: 16th February, 1897.—"Some Notes on the Montenegrin Army." "Cyclist Infantry and Relative Experiments in 1896." "The Imperial Manœuvres in Italy." "General Raffaele Cadorna." 1st March.—"The Employment of the Cavalry at Kassala." "The Country to the South-West of Florence as far as the River Pesa." "Physiology of Command." "Political and Military Notes."

RUSSIA.—*Voënnii Sbórník.* St. Petersburg: March, 1897.—"The Battle of the Alma." "Questions of Strategy" (*continued*). "Corps Manœuvres" (*concluded*). "Notes on the Artillery." "The Kirghiz Horse in the Ranks of the Regular Cavalry." "The Influence of the War of 1870-71 on the Organisation of the Armies of Western Europe."

SPAIN.—*Memorial de Ingenieros del Ejército.* No. 3. Madrid: March, 1897.—"Installation of Lines of Optical Communication in Cuba" (*continued*). "The War in Cuba." "The Country, the Men, and Arms in War." "Coast Artillery: Penetrating Calibres and the Future Steel Guns." "The Meetings of the Spanish Colombophile Federation" (*concluded*). "The Greek Army and Navy."

Revista Técnica de Infantería y Caballería. Madrid: 1st March, 1897.—"Cavalry." "The Siege and Surrender of Havannah to the English in 1762." "Ceuta, the Spanish-Moroccan Frontier Line." "The Initiative." "Our Armies." "The Helmet and Shield of the Emperor Charles V." 15th March.—"The Wars in the Low Countries: William of Orange and the Rebel Party." "The Siege and Surrender of Havannah to the English in 1762" (*concluded*). "Instruction in Quarters." "Profession of Ingratitude."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: March, 1897.—"The Regulation of the 10th March, 1896." "The Infantry Wagon of 1894." "March of Divisional Artillery in January and February, 1897."

UNITED STATES.—*Journal of the U.S. Artillery.* Fort Monroe, Virginia: January-February, 1897.—"An Experiment with Militia in Heavy Artillery work." "Notes on European Sea-Coast Fortifications." "An Alternating Current Range and Position Finder." "On the Rifling of Cannon." "The Mounting of 8-inch B.L. Rifles at Fort Wadsworth, New York Harbour."

NOTICES OF BOOKS.

Towards Khartoum: The Story of the Soudan War of 1898. By A. HILLIARD ATTERIDGE, Special Correspondent of the *Daily Chronicle* with the Dongola Expeditionary Force. London: A. D. Innes and Co., 1897.

The appearance of Mr. Hilliard Atteridge's book is of special interest at a time when the final dash on Khartoum looms in the very near future. Perhaps, no foreign campaign has ever been watched with keener interest by the Service in this country, than were these operations, and the reason for this keen interest is not far to seek. These operations were to finally and completely test the quality, organisation, and administration of the small but most carefully re-created Egyptian Army. This re-creation has been entirely the work of this country, and its actual carrying out has been the task of British officers. That the work of the latter was magnificently performed, and that they succeeded in making the very best out of the materials at their disposal, the events and outcome of the campaign fully proved. It was known that the men in the Soudanese battalions would fight exceedingly well, but there was still in some quarters a feeling that not even the masterly handling and training of their British leaders would ever give "grit" to a fellaheen soldiery. But once more the marvellous instinct of our countrymen for organising, and infusing the military instinct into, inferior races, was to be triumphantly manifested. This is what Mr. Atteridge has to say of the behaviour of the fellaheen troops at Firkeh, the one great battle of the campaign:—"No one who saw their ideal steadiness in action could doubt for a moment their sterling value. From the officers who led them I heard nothing but praise of their conduct." Specially noticeable too was the manner in which the men "all sprang up and left cover without a moment's hesitation," when the order to advance was given. "I have not fired a shot yet, let me stay on awhile and do something to-day," was the answer of a wounded fellah when told by an officer that he had better fall to the rear and have his wound dressed. "The stretcher-bearers and 'Red Crescent' men did their work splendidly. An officer of the 3rd Battalion told me how he saw a wonderful display of cool courage on the part of two soldiers of the 2nd Egyptians. They were carrying off a wounded comrade on a stretcher, when suddenly three Dervish horsemen, who had been hiding among the rocks, rushed out and dashed at them. They halted, laid down the stretcher, unslung their Martinis, slipped in the cartridges, and shot down two of the horsemen. The third turned and galloped off, on which the two plucky fellows coolly reslung their rifles, took up the stretcher, and tramped off to the dressing station as if nothing particular had happened." And these, be it remembered, are men of the very same race who, in previous wars with the very same foe, had allowed themselves to be massacred as meekly as would panic-stricken sheep. Men too benumbed by their cowardice to lift a hand even in self-defence, and who would crouch unresistingly to receive the sword slash or spear thrust that ended their miserable existence. The sons, indeed, of those wretched cravens of Baker's army, whose bones now lie mouldering around the wells of El Teb. In truth, a marvellous transformation, but one that must not let us forget the fact that even now the battle power of any Egyptian Army must always lie in its plucky Soudanese battalions. Mr. Atteridge remarks, "one who had previously served with

the Soudanese said he personally preferred the cool steadiness of the fellahin to the dash of their black comrades," and by so quoting would seem to indorse his informant's opinion. If this is so, probably the bulk of Service opinion will differ from him. On his return from the late campaign, a correspondent, who has had exceptional opportunities of judging the capabilities of our Native troops in the very toughest frontier work in India, and who has, moreover, had a fairly broad experience of campaigning in very diverse quarters of the globe, and with more than one nationality, said to the writer of these lines:—"You know our best Indian troops, and have seen them on service. Well, I take it that the Soudanese, under English officers, are as near as possible to being as good as our best Sikhs or Ghorkhas." This praise given to the Soudanese battalions is high, but we fancy that the bulk of those who have seen both on service will endorse it.

No one who has studied this campaign will fail to be struck with the divergence—in diametrically opposite directions—of the morale of the Egyptian Army and the Dervish forces. A few years ago the former were demoralised, inefficient, and useless; the latter, strong with the flush of invariable success and possessed of all that confidence inherent in triumphant religious fanaticism. To-day the Egyptians are well organised, thoroughly efficient, and full of valour; the Dervishes crushed in spirit, their pluck enfeebled by fighting in a cause they have lost their love for, their fanaticism dead. Absolutely personifying the changed conditions stands out the figure of one man—Slatin. Yesterday the slave and door-keeper of the Khalifa, to-day riding over the field of victory identifying the slain bodies of those at whose hands he had suffered so much. The Slatin of Omdurman personifies the triumph of Mahdism, as does the Slatin of Firkeh its decay. To the energy, the grit, and the bull-dog pluck of the Austrian subaltern, Egypt will owe much of the profit and honour that will accrue to her when the Crescent and Stars fly once more over the ruins that now represent Khartoum.

Ever since Slatin emerged from his long captivity and told the world the truth about the Soudan, an advance on Khartoum became sooner or later a certainty. None the less, however, was the campaign undertaken at the briefest of notice. The defeat of Baratieri by the Shoans at Adowa had encouraged the Dervishes to attack Kassala, and to relieve the hard-pressed Italians we had to force the Khalifa to concentrate some of his energy and attention on Dongola. Hence the expedition had to be undertaken at a most unsuitable time of the year, and, to still further render the conditions adverse, extraordinarily unfavourable weather prevailed. Again the cholera demon swept its way up the Nile valley, and added that quota of suffering to all that the force had to endure. This fell scourge had, moreover, to be met and encountered by an inadequate—but only numerically—medical staff. "The medical service was altogether admirably organised and worked most efficiently; the only drawback was the small number of British medical officers available. They were all hopelessly overworked in consequence. A few more surgeons would have been of incalculable value to the expedition." Finally—and perhaps unavoidably—the conduct of the expedition was governed by an economy so rigid as to amount to niggardliness. And yet, in spite of all these difficulties, the operations were carried out without a hitch, and Sir Herbert Kitchener and his officers brought to a termination absolutely successful that campaign which is only the first phase in the war that will eventually restore the Soudan to Egypt and to civilisation. All the incidents and events of an intensely interesting campaign are graphically and readably described by Mr. Hilliard Atteridge, and though ill-health forced him to return from the front before the final dash on Dongola, yet he completes his tale from "the official despatches, supplemented and explained by what I had already learned in the Soudan of the arrangement for the final advance." No notice, however, of the book would be complete that did not pay tribute to the excellence of its illustration by reproductions of photographs taken by the author himself.

The Sikhs and the Sikh Wars. By General Sir CHARLES GOUGH, V.C., G.C.B., and ARTHUR D. INNES, M.A. London: A. D. Innes and Co., 1897.

The history of the development of the Sikhs from a religious fraternity into a military brotherhood, and from a military brotherhood into an organised Power which defied and attacked our own Government, and fought us single-handed, is so interesting that readers may feel somewhat inclined to quarrel with Sir Charles Gough and Mr. Arthur Innes for having devoted but 60 pages of their book to the Sikhs, while they describe the Sikh wars in 240 pages. It is, however, undeniably more easy to interest the reader in spirited pictures of warfare in which our own Army was engaged, than in the complex history of an Eastern race which existed but a short time as an independent Power, and has long been merged in our Indian Empire. Short as is the historical portion of the book, it is, nevertheless, admirable, and gives a much clearer account of Sikh history than any previous work with which we are acquainted. There is not much concerning the Sikhs themselves, and in both portions of the book those descriptive touches "written from the inside" are missing, which would have greatly added to its value.

Singularly little is told of the Sikh forces which met our Army so boldly, few even of their generals are named; but, with this reservation, we have nothing but praise for the treatments of the Sikh wars.

Considerable space is devoted by the authors to the vindication of Lord Gough's reputation as a commander. Owing to the curious English habit of depreciating those whom we call national heroes, it has been usual with our writers to speak of Lord Gough as a hot-headed old Irish fire-eater, who loved the clash of steel better than the roar of the cannon, and who won his victories through the valour of his soldiers, and in spite of his own bad management. Victories are seldom won under such circumstances, and the reader will be able to decide for himself whether it was by blunders that Lord Gough defeated and destroyed in two campaigns the brave, numerous, and well-trained Sikh Army. How staunchly the Sikhs fought, and by what dogged determination we defeated them, is well told by the writers; the story of each battle is set forth intelligibly and clearly, and the military lessons conveyed by various episodes of the war are so explained as to give the work substantial value.

Being as he is an enthusiastic cavalry leader, it will cause no surprise that Sir Charles Gough touches but lightly on the disastrous incident that causes Chillianwalla to be a word of ill-omen in our annals. It is less painful to think that the catastrophe to our cavalry was caused by the incompetence of one man, rather than by the misconduct of many; and we may, it appears, fairly comfort ourselves by the thought that such was the case. The 2nd Cavalry Brigade advanced into action with its nine squadrons in one line, with no supports or reserves; and thus it was that an unimportant check was converted into a hopeless panic. In the infantry also Chillianwalla was marked by a disaster, and, curiously enough, one largely caused by the decision of the Brigadier-General Commanding the 3rd Division to superintend the movements of one only of his two brigades. This duty he performed in a masterly manner, but the brigade which he left to its own devices fell into difficulties and suffered terribly. The authors very justly observe that Major-General Sir Walter Gilbert, who commanded the 2nd Division that day, with difficulties to face of precisely the same nature, did not find it necessary thus to abandon the control of both his brigades, and, in fact, manipulated them with marked success. The cause of the disaster may well be considered curious when it is remembered that he who commanded the 3rd Division at Chillianwalla was no less competent a soldier than Colin Campbell, afterwards Field-Marshal Lord Clyde.

It is more pleasant to dwell on the many glorious actions recorded by the two historians of the Sikh battles: the magnificent charge of the 3rd Light Dragoons at Ferozeshah; that of the squadron of the 16th Lancers at Aliwal; the fighting

of Dawes and his ubiquitous battery ; and the many achievements of the unconquerable British infantry. All these incidents may be read with pride, pleasure, and profit, and the book is most cordially recommended to every soldier.

La Marine de Guerre : Six Months in the Rue Royale. By EDOUARD LOCKROY, Deputy and former Minister for the Navy. 1897.

As this book, coming from a French ex-Minister of Marine, will be of considerable interest to naval readers, it will, no doubt, be more satisfactory to give a general outline of its contents for the benefit of those who have no time or opportunity to read the original themselves, rather than to review it in the ordinary manner. It is not, of course, possible to do full justice to the work by simply quoting extracts, but as far as possible the leading features of the argument have been selected and reproduced in the author's own words. In this way, it is hoped that readers of this JOURNAL will be able themselves to judge very fairly of the merits of the work.

The opening chapter gives a somewhat dramatic account of the state of the French Navy after 1870, and of the pitiful part it had to play in the fatal struggle with Germany.

"The greater part of our officers considered themselves simply as navigators rather than possible combatants, and in this they appeared to share the opinions of the entire nation. Admiral Pothuau, then Minister, said to me one day, at Versailles :—'I shall be obliged to reduce our unfortunate Budget. All our efforts must be devoted to the land defences ; besides, of what use is the Navy to us now?' No one appeared to consider that France might be destroyed at once brutally by the arms of her adversaries, or slowly by suffocation, for want of air so to speak, through the absence of all communications with the outer world ; that a powerful Navy is, at least, necessary to nourish the population, to re-arm them in case of defeat, and re-victual them in case of victory, as well as to assure or re-establish relations with the rest of the world. In the meantime, a grand and extraordinary industrial development had constrained the old world to a new expansion. France had also suffered from the same excitement ; she did not wish to see the world divided up without having a share in it. Successively she laid her hands on Tunis, Tonkin, the Soudan, as she has later on Dahomey and Madagascar. Whilst she said, 'What use is a fleet?' she commenced to found colonies beyond the seas. The danger was all the greater, as the smaller foreign Powers had been furnished with modern ships, arms, and armaments of the best and newest designs, from European arsenals and dockyards ; and in every part of the world our miserable wooden hulls were jostling against modern squadrons and vessels of steel. At the same time, England had doubled and tripled her squadrons ; and more important still, Italy and Germany had created at our own doors two formidable fighting and commercial navies. The German Emperor, in a celebrated discourse, stated that, in the event of a European conflict, his fleet would take the offensive.

"Italy, in the face of most stupendous financial difficulties, has bled herself almost to death in order to provide herself with defended ports and a formidable fleet. She has made Spezia as strong as Toulon, and has commenced an arsenal at Taranto, which will dominate Tunis. With her fortress of Maddalena she intercepts the route of France to Algeria, and at the same time menaces Corsica. We may say, in passing, that this island of Maddalena, so redoubtable for us, is a French island, which we have forgotten to re-claim. Both Italy and Germany have a great advantage over us : they are not encumbered with old material and with old institutions, and have not to reckon with traditions, habits, and manners of a past age. This is not the case with England, but of all the nations of Europe, England knows best how to preserve her traditions and at the same time carry out the necessary reforms ; and, above all, in her new organisations how to define and fix responsibilities. When these responsibilities are neither

defined nor fixed, there is neither Army nor Navy, nor, we may say, Government, in any true sense.

"The extraordinary activity which has turned all the arsenals of the globe upside down, France has never known; she has allowed herself to be distanced by all her rivals. She who had been the leader in shipbuilding, and who was the first to launch a squadron of armoured cruisers—to the astonishment of Europe—has kept back to the old notions and the old methods. At the moment when steel commenced to be in common use, France constructed a wooden fleet. Her revolutions, numerous enough, have always respected the fleet. The work of Richelieu and of Louis XIV. has been carried on, that of Colbert is left unfinished.

"A moment came, however, when her eyes were opened; after a violent campaign carried on by the Press, and after noisy discussion in the Tribune, in which distinguished men of all parties, one after another, took part (MM. Brisson, Admiral Vallon, Pelletan, Lainy, Cochery, Greville-Reache, etc.), it was perceived that, after all, perhaps, in future wars the Navy might count for something. What was the remedy—Increase the budget? In a few years it was increased from 212 or 215 million to 280 million francs. To augment the Budget without military, administrative, and financial reform, was simply to subsidise routine. Reform our administrations—these grand services, filled in spite of all (and we must insist on this)—with admirable elements; re-organise that which time has destroyed; put in harmony with the necessities of the times what has fallen into disuse; break with routine; encourage research; recompense industry; force the separate factions to associate together in a grand transport of patriotism; make all understand the imminence of the present danger and the nobility of the task undertaken; revive wandering or sleeping energies; seek for progress in spite of mistakes and checks; force order and economy on those functionaries who have not understood that these are in themselves a power; submit the central administration and the control of the arsenals to logical laws; give legitimate satisfaction to the *personnel*; determine and fix responsibilities; show in all a single aim, a preparation for war; all these will be found far more valuable than a mere money supply." After pointing out how world-wide the interests of France have become, and deploring her want of protected harbours and coaling stations in her Colonial possessions, her obsolete wooden fleet, etc., the author remarks, "Thanks to this wooden fleet, if a European conflict were to arise we should find ourselves overpowered in all parts of the globe. The admission of foreign officers into the Navy is condemned; what interest can Roumania, Belgium, or Sweden have in knowing everything we do on the sea, is true; but after these Powers are daily placed *au courant* with everything which concerns our national defence, it is a farce to speak of our naval secrets. Submarine-boats and torpedo-boats are considered the best defence for our Colonial coasts; the torpedo-boat is to be feared not only for the material damage it can cause, but for the moral distress it can provoke. I have heard that at Fouchou one of our ships saw a simple torpedo-launch coming down on her and opened fire immediately with all her small guns and rifles. The terrified Chinese in the launch threw themselves overboard into the river, but the launch reached the ship intact; not a projectile had touched her. * The torpedo-boat is an arm peculiarly French; for their employment a grand audacity is essential, a sort of heroic folly; with them our officers could work wonders. These boats are supplied by private firms; the Royal Dockyards have never built any, and do not know how. Accidents to these vessels are frequent enough in peace-time, What would they be before the enemy? They would be continually out of action. The proper type of boiler has not yet been discovered, but accidents are generally due to an imperfectly trained *personnel*. We have also too many old torpedo-boats; no torpedo-boat, at the present day, should have a less speed than 25 knots, or she will fall a prey to the destroyers and torpedo gun-boats." After a good description of the complexity of a modern battle-ship and

an enumeration of the many causes of failure that she contains within herself, the author wonders what the result would be under all the enormous strains of actual warfare, or continuous service at the highest pressure.

"In the calculation for the life of boilers, war-time is never considered. They say such a boiler will last two years; two years if we only want to work it for about two days a month at moderate pressures. But what if it is obliged to be continually under forced draught, to be continually under way at full speed, to run and fight every day? It might perhaps last for four months. Another defect in the French fleet is the multiplicity of types, each apparently designed more in accord with a particular fancy than with any definite object in view as to its fighting qualities, and each of these types a striking condemnation of that immediately preceding it. They only appear to have one thing common to them, that is, the complexity of their machinery, of the engines, principal and auxiliary; the latter filling every corner, and in such numbers that they would themselves use up all the coal supply of the ship in a few weeks. Bad as this is, the complexity of the artillery and the variety of types are still worse.

"MM. Croneau, Bertin, and Vallier have proved the urgent necessity of a revolution in the artillery and naval construction of France; a revolution already in the way of accomplishment in England and Italy. The "Majestic" and her sisters are constructed with the view of resistance against high explosives, and as we only seek protection against projectiles we ourselves possess, a simple view of the "Majestic" is enough to persuade us that the English possess steel shells containing high explosives, capable of penetrating steel armour of medium thickness. In addition to naval construction, the speeches in the Houses of Parliament, in Italy, in Germany, and in England, all seem to indicate a scheme of military operations already fixed, a prepared and well-considered strategy, tactics which have been thoroughly studied and which will ensure success. In France, *à propos* of the creation of a school of war, I have heard denied by competent persons that naval strategy, or even naval tactics, had any existence.

"For all the defects of design, such as the want of stability of the "Descartes," the heavy superstructure of the "Brennus," necessitating their partial reconstruction; for accidents to machinery and boilers, etc., no one is ever responsible. These accidents, however, have cost millions of francs to the State, have caused the death of brave officers and men, and have compromised the national defence. A discreet absolution covers them; time causes them to be forgotten. Construction in France is proverbially slow; a ship which can be constructed in England in a year and a half we must wait ten years for, nor is the fault with the State alone; armour plates supplied by contract are often eighteen months behind their time for delivery. National outcry prevents recourse to England, as England often has recourse to our industries. The Navy is the victim of this straitlaced patriotism, and which costs the country dear. Material may be cheaper in England, but then her workmen are paid one-third more wages for the same work, yet the cost of construction in France is the highest in Europe. What is the secret? Italy has solved the problem in applying the principle of the division of labour, in organising what is known as the autonomy of the Services. The objection to this system in France is that the Services, especially in the department of marine engineering, take no thought of money, and pre-occupied with their professional requirements have no pity on the Budget. Then there is the difficulty of professional and official valuation, the latter fixed at rare intervals based on fictions rarely in agreement with the reality." The author here says, "I have tried to review briefly, and perhaps too briefly, the state of our Navy, and to indicate the principal defects both from an administrative and a military point of view, and I now propose to review the intellectual and moral conditions.

"The defects of our naval *personnel* are not confined solely to the insufficient supply, but are rather due to the ignorance of those who love the Navy, but at the same time fear to study it; to the isolation in which it has been held by the fatal

and wide-spread belief that it was a national luxury, and could never serve any good purpose.

"The character of the *personnel* has not degenerated, in no nation of the world can we find a corps of officers better educated or better fitted for naval service; and the devotion, traditional honesty, and heroism of our men are proverbial. It is marvellous that all these virtues have ended in a state of impotence and disorder, but there are profound reasons for it. The naval world is a world to itself—a world extremely self-contained and absolutely closed. With the fidelity to its traditions in which it is isolated, as on board its ships, a spirit of opposition to all criticism dominates it, it shows for all who do not partake of its particular and adventurous life a sort of disdain which it can never completely dissimulate.

"Take an officer of the highest grade and a common sailor, and you will find in both the same man, only on different planes of intellectual development. In both you will find the same sentiment of duty and discipline, the same facility of accommodation to circumstances, the same manner of thought and feeling. In both are profoundly developed the love of home and family, which is the more lively and ardent the less opportunity there is of enjoying them; a very high conception of personal dignity, a natural timidity, the result of a solitary life, a religious sentiment pushed sometimes even to the extreme of superstition; added to all this, a certain self-assertion of character and involuntary pretension to infallibility.

"We can easily understand then with what trouble and effort new ideas can penetrate this world, impregnated with traditions, filled with memories, isolated from humanity in a perpetual *l'été-à-l'été* with the infinite, and on which the past weighs with all the force of accumulated centuries. With its absolutist tastes and invincible tendency to immobilism it can only accept changes which are forced on it from without. Those who have acted on it and constrained it to progress and reform have never belonged to it. Colbert, who invented the maritime conscription, organised our arsenals and created our fleets—how has he not been cursed by our sailors! After Colbert and Louis XIV., we have Chasseloup-Laubat and Guizot, who ordered the necessary changes. A civilian, in spite of the revolt of all the competent and specialist *personnel*, decided for the expedition against Alger which ended in our glorious colonial conquest. This spirit of resistance is not confined to our own country: other Powers have experienced and provided against it; in England there is the Civil Lord, in Germany the Emperor. Many proofs of this contention are at hand; from 1830 to 1848 steam made its first appearance; nearly the whole of the Navy was against it, the Conseil des Travaux fought against the Government and the Ministry in defence of sails, contending, as did M. Thiers, that the new machines would never be more than toys. After the steam engine, it was the same with the screw propeller. M. Guizot, in spite of the Conseil des Travaux and the engineer-in-chief, M. Roussin, passed the plans of the "Dupuy de Lôme" and ordered the "Napoléon" to be built, and thus placed French construction in the first rank of naval ship-building. The type "Gloire" and her congenitors had put our constructors at the head of their rivals; and after them, from 1875 to 1880, that wooden fleet was put on the stocks which still paralyses our naval strength, and is a humiliation for our country."

The remainder of this section is a strong condemnation of the system of promotion by favouritism so prevalent in the French Navy, and the question is then asked, "What then are the objects we have to pursue? New types of vessels must be built; of what type? This is to ask what the *rôle* of our Navy will be. It must protect our frontiers on the sea; defend our ports and harbours; attack the coasts, ports, and harbours of the enemy, ruin her commerce, and guard our own. In a word, do the enemy the greatest possible injury, the sooner to compel him to capitulate and sue for peace. I have not spoken of pitched battles, they can only be the result of accident—the principal accidents, if you like, of the struggle; but to protect our coasts and harass those of the enemy we must have small

ships, which may have a limited range of action, but must have great speed. Torpedo-boat destroyers, torpedo gun-boats, and submarine-vessels, with which might be associated some of our older ships placed at the entrance of our ports as bases of action, and to serve as coast-guard ships. For the attack and possible combat and the destruction of the enemy's commerce, to guard our own colonies, and ravage those of the enemy, as we have no bases of operations except Bizerta in the Mediterranean and Saigon in Asia, we must have ships of considerable tonnage, an extended range of action, capable of carrying an enormous coal supply, and of keeping a long time at sea. England might be able to retain ships admittedly imperfect and relatively useless; France with her reduced resources and enormous budgetary charges should not have a single inefficient arm at her disposal. Small ships defend themselves by their numbers, extreme speed, and reduced dimensions, and need not seek for other protection. For larger ships the case is different. The new ships should have a redoubt impenetrable by the projectiles of the enemy, for to armour them sufficiently from end to end is impossible; they can either be protected at the bow and amidships as proposed by an eminent engineer, or as in Italy and England by an elevated central fortress. We must have vessels of 10,000 or 12,000 tons displacement, strongly armed, with a range of about 3,000 miles at 14 knots or 8,000 at 10 knots, able to fight either singly or in groups; a sustained speed capable of protecting them against torpedo attack; sufficient protection to enable them to engage the largest ships; a large coal supply; of these we should have but a single type. Cruisers we should have for carrying orders, for diplomatic service, and carrying our flag abroad. These should be strongly armed and slightly protected; too much protection necessitates considerable displacement; but what is lost in defence is gained by offensive capacity. They should be of about 4,000 to 5,000 tons, costing about half as much as the others, and could be sent to the naval stations abroad at the principal strategical points of the globe. We should thus have five principal types: Fighting units, 10,000 to 12,000 tons; cruisers, 4,000 and 5,000 tons; gun-boats for bombardments and torpedo-vessels, 300 to 1,000 tons; torpedo-boats, 100 tons; submarine-vessels. The object of a great maritime Power certain of victory by the numbers and strength of her ships is, as they say in England, to crush the enemy by sheer weight of metal; the object of a feebler Power, on the contrary, is to avoid serious encounter, and if she can, to destroy her enemy's trade, harass her coasts and ports, and organise a vigorous defence. But this plan cannot succeed unless it has been studied a long time in advance; the fleet must be properly stationed, bases of operations abroad created, harbours of refuge and supply provided, strongly defended and difficult of attack. The plan, which might be annual, must be elaborated by a superior council, and by the naval staff in conjunction with the minister of war and minister for foreign affairs.

"Too much margin must not be left to individual aspirations, with consequent risk of disorder being created at the supreme moment when united action is most necessary; our ports must have docks for the necessary repairs to our ships, etc., etc. But all our efforts will be in vain if we do not organise our intelligence department beforehand, if this in time of peace is not seriously and definitely installed, and I admit the task is a long and arduous one."

After justifying himself against his accusers, some of whom accused him of doing too much and others of doing nothing at all when in office, the author points out the danger of being caught on the verge of war with the whole naval administration in the throes of a revolutionary organisation. He says:—"It is then with firmness, but also with extreme caution, that one can interfere with the complicated wheelwork which composes the enormous machine of national defence. However defective or inefficient the organisation may be found in its entirety, it is only by one step at a time and with the greatest precautions that reform can be effected. The working of the grand military apparatus must not be suspended for a single

instant, for a single stoppage at an awkward moment might jeopardise the very existence of the nation. Three most important things are necessary which are in appearance not easily reconcilable: profound and gradual reforms, new expenses, considerable economies. For new situations new men are necessary, and the minister must surround himself with councillors known to himself, able to explain in difficult circumstances, to guide him sometimes, and to support him always." The author justifies his choice of assistants when in office, of Admiral Chauvin (with whom, he says, contrary to report, he was always in accord) as chief of the staff; M. Bertin, as director of material and chief of the technical bureau; M. Chatelain for the control; M. Sémichon for accounts; in the military section, M. Savin, M. Ignace, M. Tréfeu, and M. Paul Fontin (former secretary to Admiral Aube). The programme of reforms initiated by the author, which was on the lines indicated above, was promulgated to his assistants, the text of which is given in full, as also are in many subsequent pages the enormous difficulties which occur at every step in attempting to carry them out; to overcome old prejudices and traditions, to make changes of *personnel* and yet to respect vested interests, and do justice to all parties. Not the least of these was to so arrange matters that the services of comparatively young men might be secured as admirals and officers in command of fighting squadrons.

"A General Order of twenty-one clauses was prepared by which the desired end could be obtained, the chief of which was the creation of a superior school, from which commanding officers who had passed creditably through the special course might be obtained. The question of the boilers is one with which the Navy is especially concerned; on the working of these, perhaps still more than on the power of the artillery and the strength of the armour, will future success in war depend. Makers of boilers in the private trade often arrange to have an ex-naval engineer attached to their firm, and by this means often manage to have their type of boilers accepted by the Ministry, even when the design is known to be imperfect. The administration leaves to the engineers all authority concerning the material of the fleet, so far as concerns the work to be carried out. These engineers are certainly most able men, but they naturally look at things from a professional, and not from a national, point of view. For this reason errors which I have pointed out are committed, which officers, without their competence, but who are pre-occupied above everything else with the possibility of war, would certainly avoid. The military element, then, must be in charge of the constructed fleet. If this reform is not carried out we shall never know where we are, nor on what portion of our fleet we can depend for instant service. We must also imitate Italy—resolutely sell or destroy everything which is definitely unserviceable in a modern fleet. For this reason, after consulting with the maritime authorities, more than eighty vessels were removed, or intended to be removed, from our active list. Here are the names:—"Bouledogue," "Magon," "Hussard," "Sagittaire," "Alerte," "Bourrasque," "Ariège," Nos. 17, 21 torpedo-boats, "Infatigable," "Néréide," "Vétéran," "Paulimé," "Ablette," "Finistère," "Vengeance," "Jéna," "Arrogante," "Panama," "Entreprenante," "Var," "Cérés," "Drague," "Framée," "Garner," "Chacal," "Pique," "Gorreze," "Triomphante," "Béliér," "Villars," "Brandon," "Pétrel," "Bobillot," "Cuvellier," "Raynard," Nos. 10, 20, 47 torpedo-boats, "Sarthe," "Ganard," "Dorade," "Macreuse," "Zéphir," "Duchaffault," "Japan," Nos. 18, 23, 31, 32, 42 torpedo-boats to be for training stokers, Nos. 40, 51, 54, 55 removed while the boilers are under repair; "Bler," "Loutre," "Primanguet," "Forfait," "Dupetit-Thouars," "Roland," "Beautemps Beaupré," "Hirondelle," "Dumont-d'Urville," "Lynx," "Lion," "Annamite," "Isère," "Écureuil," "Alcyon," "Cigale," "Salamandre," "Lézard," "Loyalty," "Lutin," "Trident."

The fleet relieved by these sales, and fortified by the separation of the constructed fleet from that under construction, attention is turned to the existing squadrons, to see that they are prepared for war, and how they shall be composed.

No doubt, like all European nations, and for all the existing military services, we have plans of campaign formed in advance at least on general lines, and the crime of possessing none at all has fortunately not again been committed. But—and this must and should be said—we give too much room for, and allow too much to depend on, the initiative or inspiration of our chief officers. It is in some sort a national defect to always reckon too much on an explosion of genius which will save everything; on an unexpected thunder-clap which shall pulverise the enemy and compel victory.

“By the new organisation of the torpedo-boats, by works designed for their maintenance, by utilising the naval reserve for coast defence, by the creation of a tactical school, by a new basis for the Budget, by the suppression of old and useless vessels, by a more rational solution of the boiler question, by measures for suppressing favouritism and giving more security and justice to the *personnel*, and lastly by the complete re-organisation of the central administration and that of the dockyards and a first step towards the re-organisation of the directorate and of the accounts, efforts have been made to carry out the provisions of a programme thus summed up; and for a better preparation and more prompt mobilisation for war. The end which I followed, and which I think it is still necessary to follow, is the formation of an economical modern fleet, permanent if this is possible, commanded by young officers, active and zealous, having under their orders crews full of confidence, ready for fatigues and self-sacrifices.”

The next eighty pages of the book are devoted to the details of administrative reforms which have already been indicated in a general way, after which follows a chapter on naval construction, the gist of which appears to be that France should follow, in the design of her new ships, the salient features of the new English battle-ships of the smaller type. The principal points being a good reserve of buoyancy; absolute independence of the principal water-tight compartments; efficient protection over a large area against projectiles charged with high explosives; stability; guns placed high, with a large angular range of fire. Authorities such as M. de Chasseloup-Laubat and M. Lorenzo Adda (in Italy) are quoted to show that the fighting ships of the future should be of the “monitor” type, very low on the water practically without superstructure, with a complete armour-belt, great metacentric height, a cellular section, cofferdams packed with cellulose, and a deck below the water-line. M. Adda adds, furnished with special petroleum power machinery. As regards the artillery, a reduction of types is advocated, as also the necessity of providing shells which can be charged with high explosives, and which will be used against slightly-protected ships or the unarmoured portions of battle-ships, and also heavier crushing and armour-penetrating projectiles which can be used from the same guns. Mr. Goschen is quoted to show that the English have solved the problem, and that a large provision of such high-explosive projectiles will be made this year. “In conclusion:—1. Admitting even that foreign Navies do not possess these new projectiles, we must build our ships as though they did possess them, for during the time the ships are being built the problem will, undoubtedly, be solved. 2. These ships must be armed, not only with armour-piercing projectiles which can penetrate the armour-belt at the line of flotation, but also with steel shells of medium capacity charged with explosives, fitted with a fuse in the rear, and capable of penetrating before explosion the thinly-armoured ships of the “Magnificent” type. 3. Shells of large capacity. In these directions all European Navies are progressing.

“As regards mortar-vessels, it remains to determine under what conditions a small gun-vessel could discharge a shell, with an initial velocity of 300 metres, of large calibre, and large capacity for explosive like those of the war department, so as to hit a battle-ship or large cruiser at distances varying from 300 to 500 metres, the target being not less than 100 metres long and 8 metres above the water-line. If the “*Dragonne*” can succeed in this, another type should be urgently

prepared capable of launching, under the same conditions, projectiles containing 50 kilogrammes or more of melinite. The trials which have been made since this book was in the press have exceeded all expectations, and so, in spite of the violent resistance of the technical department, we have succeeded in providing a new and powerful arm to the national defence. The "aviso-mortier" will have defects; but what other type has not? An eminent engineer the other day, speaking on the difficulties inherent to the problems of naval architecture, said, 'The best ship possible is only the least defective one.'" On the subject of coast defence as regards France herself, the author is discreetly reserved. A list of questions on naval design and tactics, etc., laid before the superior council is then given; but as the answers are not available, there is no need to quote them here. The remaining thirty pages of the book are devoted to the question of the Marines and the Budget, and an epilogue in which the author appeals to his countrymen to cease their particular party quarrels and quarrels of religion, which prevent them from looking around and noting the formidable Powers which are concentrating their forces about them.

"Thanks to a wise foresight and the completion of the Kiel Canal, fifty German ships were able last spring to come safely through to the entrance of the channel. We must not deceive ourselves; it is there the great danger lies. A strict discipline, a fleet which will soon be more numerous than our own, an extraordinarily developed industry, a profound science of war, will very soon make Germany the Naval Power most to be feared after England. Let us unite our wills and our efforts without distinction of party, and labour to transmit to our children the heritage, already reduced, which we have received from our fathers; to think of the safety of our race and the responsibilities of history; to have but one care—the present danger; but one thought—our country."

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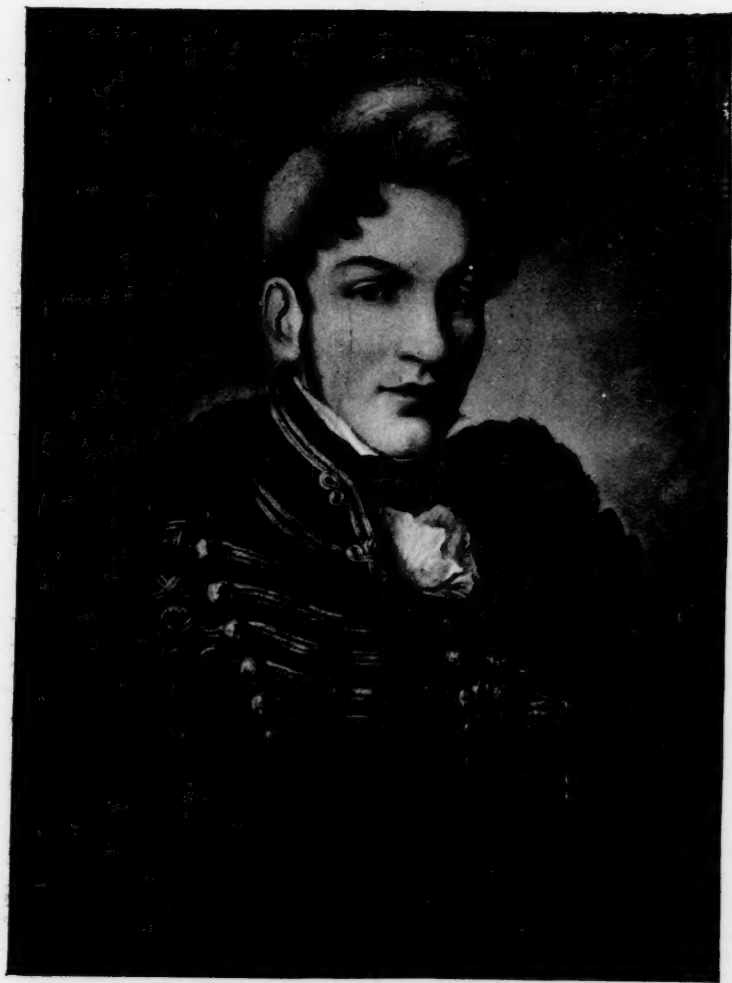
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MAJOR WILLIAM NORMAN RAMSAY

(Royal Horse Artillery),

Killed at Waterloo, 1815.

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